

# CONSUMERS' RESEARCH

INCOMPLETE FILE

## Bulletin



February 1947

### CONTENTS

#### *For the Home*

Furniture Cleaner—Ultra Gloss.....	7
First Report on Electric Blankets.....	8
Making Soap at Home.....	13
Preliminary Report on Automatic Washing Machine—Launderall.....	15
"One-Hand" Egg Beater.....	18

#### *For the Automobile*

New Tire and Tube with Safety Features....	12
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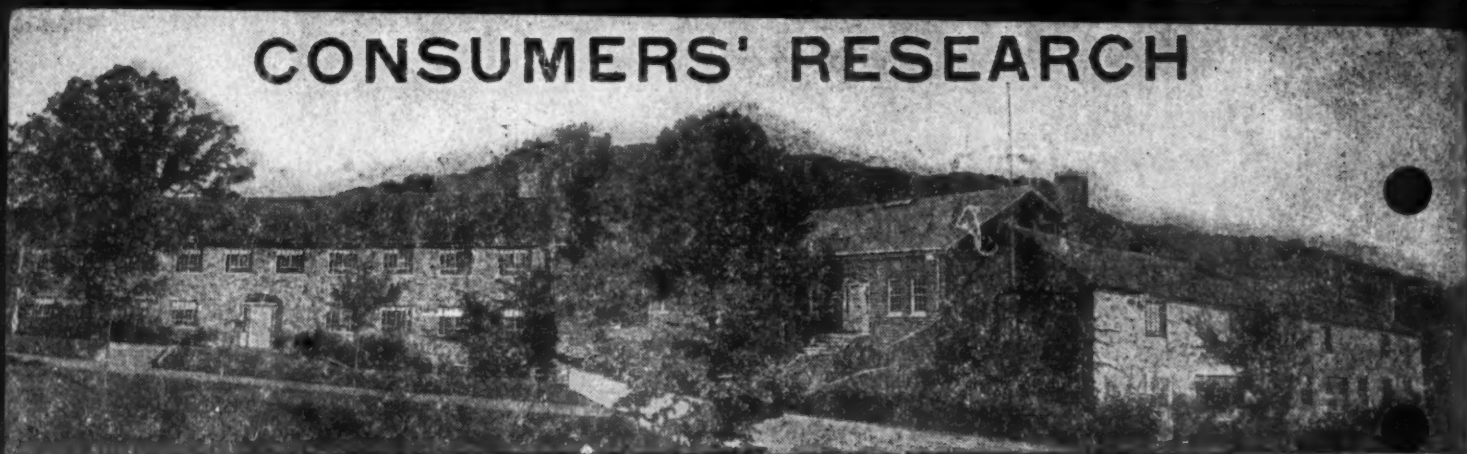
#### *Miscellaneous*

Fluorescent Lamps — I.....	5
A Folding Hand Camera, and a Stereo Camera.....	14
Low-Quality Binoculars.....	16
Three Fountain Pens.....	17
Killing Germs with Lamps.....	19
Commodities Scarce—Legislation in Oversupply.....	25
High-Fidelity Radio-Phonographs— a Question for Subscribers.....	26

#### *Features*

Off the Editor's Chest.....	2
The Consumers' Observation Post.....	3
Brief 1947 Cumulative Index.....	26
Ratings of Motion Pictures.....	27
Phonograph Records..... Walter F. Grueninger	31

# CONSUMERS' RESEARCH



Vol. 19 • No. 2

## BULLETIN

February 1947

### Off the Editor's Chest

**I**NDICATIONS that consumers are extremely dissatisfied with the quantity, quality, and prices of products and services now available are increasing in number. In fact, several trade journals have warned their sections of industry of the need for caution in the days ahead. The seller's paradise of recent years when "Buy it at any price" was the prevailing attitude is disappearing like a desert mirage.

First to feel the effects of consumer resistance have been high-priced furs, jewelry, perfumes, expensive restaurants and night clubs. Even manufacturers of the eagerly awaited electrical appliances, refrigerators, ranges, washing machines, vacuum cleaners, and radio sets are reported to have begun to sense the need for making appliances that can be sold at something like pre-war prices. The more foresighted are said to be making ready to switch to the manufacture of simplified models to be offered at lower prices than the inflated ones now usually asked. Numerous sales of clothing and household items at reduced prices have been advertised in recent months. A survey of several department stores in New York City indicated an increased percentage of purchases made in lower-priced basement departments over that which had prevailed during the war years, when trade "moved upstairs."

In spite of such encouraging portents, however, there is little prospect for immediate return to the consumers' market of pre-war days when an abundance of products of good quality was available at moderate prices. In the field of women's garments,

for example, one business magazine predicts that prices of moderately priced garments, which normally account for 60 percent of a store's women's apparel sales, will be up 15 to 20 percent due to increased labor and fabric costs. Current style changes are expected to soften women's resistance to the higher prices.

One factor that adds a considerable amount to the consumer's out-of-pocket costs is the excise or luxury tax levied by the federal government on cosmetics, furs, women's handbags, luggage, cameras, and certain other items. As a method of collecting funds to help pay for the tremendous costs of fighting a global war, such taxes were perhaps justified, although reading of the enormous stocks of surplus war goods and the large sums spent by war contractors for lavish entertainment of V.I.P.'s ("big shots," to the layman), women who pay a \$60 tax on a \$300 fur coat or even a 20-cent tax on a dollar lipstick may be pardoned for wondering whether a little more economy, less waste and lavish spending on the part of the government might not have equipped our armies and those of our allies quite as fully and efficiently with less damage to consumers' pocketbooks. Certainly there is no justification from the consumer's point of view for continuing such taxes in the post-war period, and consumers should make a point of sending in a letter of protest to their Congressmen every time they find it necessary to pay a tax whose continuance seems unjustified in a peacetime economy, and which *could* be discontinued if the government

*(Continued on page 24)*

**Scientific and Technical Experts and Editors:** F. J. Schlunk, R. Joyce, M. C. Phillips, Helen P. Alleman, A. R. Greenleaf, and Charles L. Bernier. **Editorial Assistants:** Mary F. Roberts and B. Beam.

Symbols used to indicate sources of data and bases of ratings: A—recommended on basis of quality; AA—regarded as worthy of highest recommendation; B—intermediate with respect to quality; C—not recommended on basis of quality; CR—information from Consumers' Research's own tests or investigations; 1, 2, 3—relative prices, 1 being low, 3 high. Note that price and quality are completely differentiated in CR's listings; a quality judgment is independent of price; 46, 47—year in which test was made or information obtained or organized by the staff of Consumers' Research.

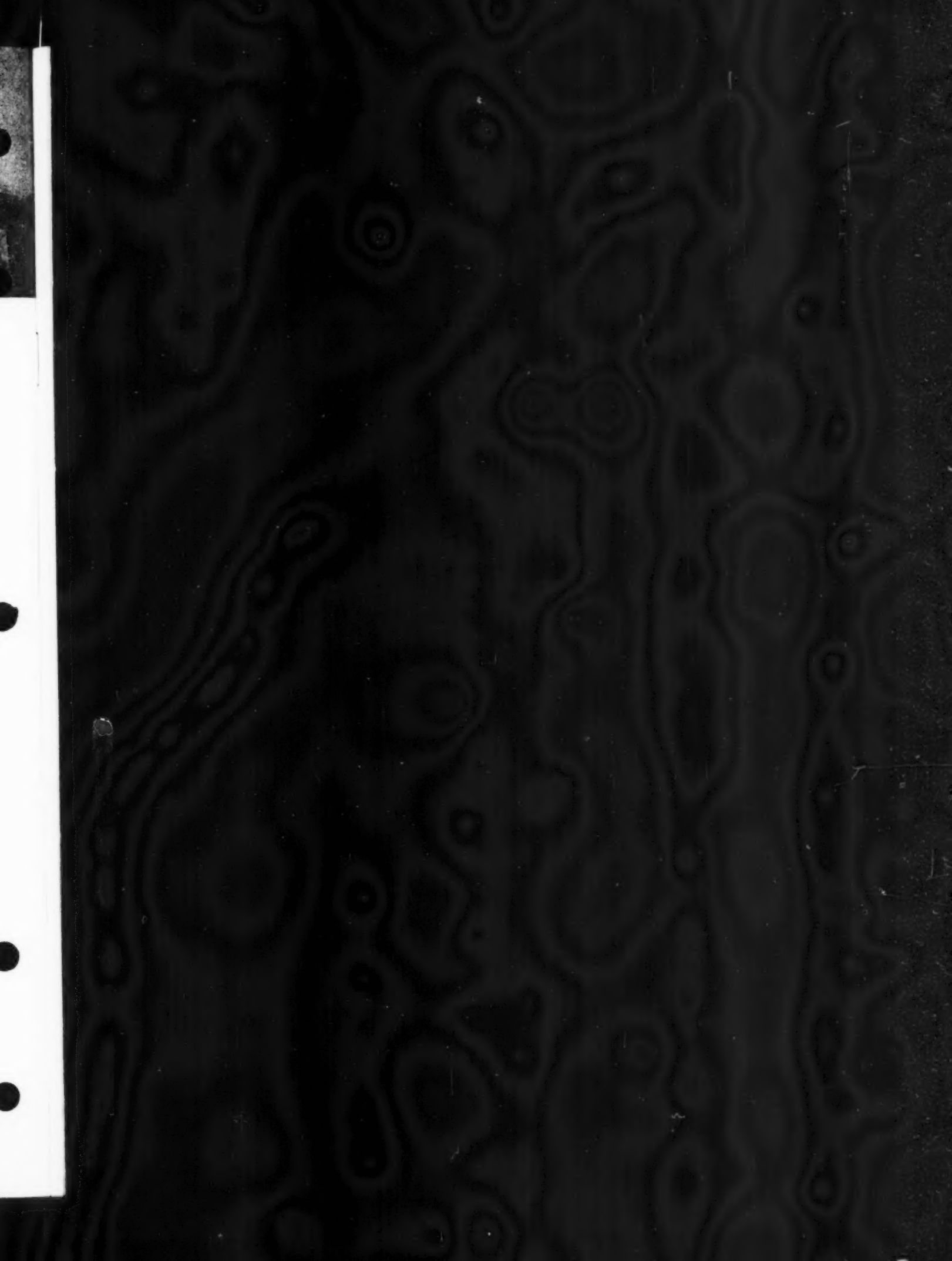
It will be advantageous if you will, whenever possible, send prompt notice of change of address at least a month before it is to take effect, accompanying your notice with statement of your old address with name in full. At least three weeks' notice must be given in any case. This rule, however, regarding long advance notice does not apply to military personnel.

\*CR will, of course, gladly change addresses for men and women in the services as often as required by changes in station and other circumstances.

★★★ For a brief cumulative index of 1947 BULLETINS preceding this issue, see page 26.

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# The Consumers' Observation Post

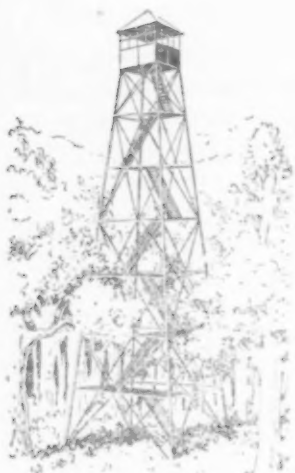


TABLE-MODEL RADIO SETS have been rather plentiful on dealers' shelves for several months. In fact, they have been available in such quantity that the eager desire of consumers to buy in the months following the lifting of wartime controls on production was quickly satisfied. Indications are that prices will be reduced considerably on well-known brands, and they have, indeed, already dropped around twenty-five percent, according to a survey by The Wall Street Journal, on new and unknown brands. A shortage of cabinets has delayed the filling of orders for con-

sole-size radio sets and radio-phonograph combination sets. Manufacturers are reported to have discovered that consumers prefer a console set with a record player to one without, but we think it more likely that radio manufacturers prefer to sell the higher-priced combination unit rather than the lower-priced radio receiver.

\* \* \*

ADVERTISING COPY WRITERS FOR DURA-GLOSS NAIL POLISH, one of three brands recommended in CR Bulletin, January 1946, grossly misrepresented CR's findings with respect to their product in an advertisement that appeared in the N. Y. Sunday News, December 1, 1946, p. 83, and in other newspapers. Permission for use of the data was requested of CR, and refused, for as we pointed out to the inquirer, we had grave doubts that it would be used in a manner that accurately reflected the test findings. We were right. The advertisement stressed the fact that CR found the product's film durability or wearing quality the best of the 10 brands tested, but failed to mention an equally important point, that CR found that the scratch resistance of Dura-Gloss was relatively poor. As the text of CR's article pointed out, scratch resistance is considered an important measure of durability. There is no basis whatever in CR's data for the statement in the advertisement that "Dura-Gloss Nail Polish was the only polish among the three recommended brands which had not sacrificed film durability to drying speed." CR made no such correlation and the data did not give any basis for such correlation. CR subscribers will be well advised to be suspicious of any advertisement that uses CR's name and findings. When and if we give permission for such use, it will be only after we have carefully examined and approved the advertising copy, before publication. It is possible that there is an advertising man who is careful to restrain his sales claims to the narrow limits of truth about the product he is selling, but it has never been our good fortune to meet such a person.

\* \* \*

PEPPER, during the days of the late OPA, had a price ceiling of 15 cents a pound wholesale and was hard to find in the grocery stores. When price controls were lifted, the asking price was 75 cents a pound, reports Business Week. Before the defeated advocates of price control start shouting "We told you so," they should examine recent trading operations of our own government with a critical eye. It appears that when the U. S. stockpiles of pepper were nearly exhausted early in 1946, the government made arrangements to buy several thousand tons of pepper from India at the market price of something like 25 cents a pound to be sold to U. S. wholesalers at the ceiling price of 15 cents a pound, with the U. S. taxpayer making up the difference. By the time the shipment reached New York, price controls had been lifted and the dwindling stock of pepper was selling at 40 to 87-1/2 cents a pound. The Department of

Agriculture, like many a profit-minded (greedy, in left-wing parlance) capitalist seized the opportunity to make a profit on a scarcity market and offered the new shipment to the trade at 75 cents a pound, a 200 percent markup over cost.

\* \* \*

CHEESE SPREADS containing phosphoric and pyroligneous acid have been subjected to Food and Drug Administration action for misbranding. The particular products involved were Borden's Pimento Cocktail Spread and Borden's Smokey Cheese Cocktail Spread. The pimento spread was found to contain phosphoric acid, an inorganic acid, which had been incorrectly listed on the label as "organic acid." In this connection, it should be noted that researches previously reported by CR indicate that phosphoric acid is highly undesirable as a food and beverage ingredient and has been shown to have a marked effect in dissolving tooth enamel. The "smokey cheese" product was found to contain pyroligneous acid, listed on the label as "Hickory Wood Distillate." The Food and Drug Administration held that this was misleading labeling, as the wording used was not the common or usual name for pyroligneous acid.

\* \* \*

ARTHRITIS is not cured by having some or all of the teeth pulled, comments Dr. Richard H. Freyberg of Cornell in the Journal of the American Dental Association. It appears that infection in a tooth might act as a trigger to set off the arthritis, but once the latter has set in, it continues independently of tooth or other infection. Cleaning up or removing a diseased tooth should improve a person's health and improve his ability to fight arthritis, but that is all that can be expected. Certainly good teeth should not be sacrificed by arthritic patients.

\* \* \*

VITAMIN DEFICIENCIES in their early stages are often difficult to identify, according to a study by Dr. David Cayer, of Winston-Salem, N. C., in the Journal of the American Medical Association. He suggests that it is unwise to make a diagnosis on the basis of symptoms alone, without a definite history of the patient's dietary habits. Another physician commenting on Dr. Cayer's paper reported that he obtained excellent results in treating patients with dietary deficiencies by putting them on a very high protein diet, in addition to prescribing vitamin supplements. Still another physician offered the suggestion that we must go still farther back in treating vitamin deficiencies and put back into the soil the natural elements of which it has been depleted, and this is by many thought to be the primary cause for the lack of proper vitamins and minerals and perhaps other subtle nutritive values in our foods.

\* \* \*

STOCKS OF SURPLUS COMMODITIES are reported to be piling up in government warehouses in large amounts. The reason is apparent to any small purchaser who has attempted to comply with the complex restrictions that govern a sale. There is a complete lack of any merchandising sense on the part of officials of the War Assets Administration, and the red tape surrounding such a purchase is just too intricate in many cases to be unraveled by average people, the kind who would like to buy the goods. Indeed, it almost requires a lawyer's advice to enable one to know how to buy government offerings in some cases. The present scheme for more rapid disposal is to set up merchandise centers in various large cities where wholesalers may place their orders. (The ultimate consumer need not apply.) One trade association has requested that the officials handling the sales at such centers make it plain that the prices charged are low because the original cost has already been paid for by the U.S. taxpayer. Businessmen are justified in not wishing consumers to obtain false ideas of costs of manufacture from the low prices charged for some of the surplus items that happen to be in small demand and must therefore be sold, oftentimes, at prices that seem absurdly low.

\* \* \*

CANNED FRUITS AND VEGETABLES are so plentiful that prices to the consumers must necessarily be reduced in order to dispose of the 1946 pack before the new one starts to come in. Some food men, according to The Wall Street Journal, expect the price break to come around April first, if not earlier. Frozen vegetables are reported to be giving canned food some competition for the con-

(The continuation of this section is on page 29)

# Fluorescent Lamps—I



THE average person has been so conditioned by the years of use of incandescent lamps as almost universally to react to the fluorescent lamp and its operating circuit as being unnecessarily complicated. Such a person probably feels that he knows just what makes the filament lamp function to give light, but cannot see how the fluorescent lamp works at all. Most incandescent lamps require nothing in the way of auxiliary equipment beyond a proper socket or receptacle, which in turn is connected to a suitable power supply. But with the fluorescent lamp, there must be two lamp-holders of any one of half a dozen or more varieties (except in the case of the newly announced circular lamp) along with a ballast, which in itself is a puzzle, and, in most cases, there is besides an equally mystical starter.

The incandescent lamp is, in simple terms, a fine metallic wire or filament, now usually of tungsten, so arranged in a glass enclosing bulb that this wire forms a continuous circuit between the two sides of the supply line to which it is connected. The size and length of this filament are so chosen that, though the wire is heated to incandescence in the special atmosphere within the bulb, the filament will not be consumed or "burnt out" within a reasonable number of hours of operation. This white hot filament then gives off light, typical of any object which might be heated to that same temperature; and, with this light, it likewise radiates heat.

The fluorescent lamp, on the other hand, is, in basic opera-

**L**IGHTING is an important element in the home, not only from the standpoint of safety and convenience, but also of cost, for according to a recent estimate given in a trade journal, about 19 percent of the total outlay of consumers for appliances goes into lighting equipment. (Radio is a close second with 16 percent, and the domestic refrigerator is the only larger item, with about 26 percent.)

Some years ago CR discussed the subject of fluorescent lamps in an article and a number of brief comments; as the subject is one which is advancing rapidly and in which many consumers have become interested (having in mind especially problems of home lighting), it seemed important to consider various questions related to the use of fluorescent lighting. This seems particularly in order since outside of professional engineering circles very little is known about the properties of these lamps and their desirability as compared with standard tungsten filament lamps.

The public generally are poorly informed on this topic, and many people have false impressions regarding fluorescent lamps, such as, for example, that their radiation is harmful to the eyes, a rumor which has apparently received wide currency.

As this article shows, there are a number of other ideas which it is important to understand before deciding upon fluorescent lighting for the home and office, and consideration of them is vital in the selection of lamps of good type and quality.

tion, an arc lamp, in which the current flow through the tube takes place by conduction of the gases within the tube, i.e., there is no metallic circuit through these lamps. Current flow is between electrodes located at the ends of the tube, and these are usually referred to as cathodes. Now an arc is peculiar in that it tends either to go out due to decreasing current, or to be self-destructive due to increasing current, unless there is a stabilizing element in the circuit, that is to say, a ballast. When an arc lamp is operated on direct current, this ballast must be a resistance and, as a result, only about one-half of the energy consumed by the circuit is actually consumed in the lamp. With an alternating current supply, reactance (a coil wound on an iron core) may be used instead of pure resistance, with the result that 80 to 85 percent of the energy of the circuit is delivered to the lamp.

The above condition means that the full efficiency of the fluorescent lamp can be realized only when the lamp is operated from an alternating current source with a reactance ballast. Lamps which are provided with ballasts such that they may be used either on a-c or d-c circuits, must have the resistance required for d-c operation, and hence can give only a fraction of full efficiency, regardless of whether they are operated on an a-c or a d-c circuit. Fluorescent lighting from d-c lines, or on a-c lines with an ac-dc type of ballast, shows little gain in efficiency over incandescent lighting; furthermore, it is likely to be trouble-



## Fluorescent Lighting

### Advantages

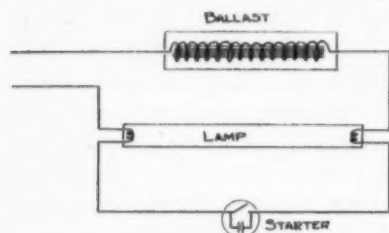
1. High efficiency of light production.
2. Low heat radiation ("cold" light).
3. Low brightness due to large area of light source, hence less likely to cause discomfort due to glare.
4. Long life of lamps (especially those of the cold-cathode variety).
5. A variety of colors available at good efficiencies.

### Disadvantages

1. Extensive auxiliary equipment necessary (cold-cathode lamps not quite as bad as the hot-cathode in this respect).
2. Lamps difficult to handle in servicing due to lengths of tubes.
3. Starting troubles due to atmospheric conditions (cold-cathode lamps normally free of this fault).
4. Surrounding temperature affects light output.
5. The problem of radio interference.
6. The ballast heating problem.
7. Stroboscopic action from single lamps or lamps all connected in phase.
8. High first cost of lamps and fixtures.

some due to lamp starting difficulties.

Lighting units usually are marked to indicate the voltage



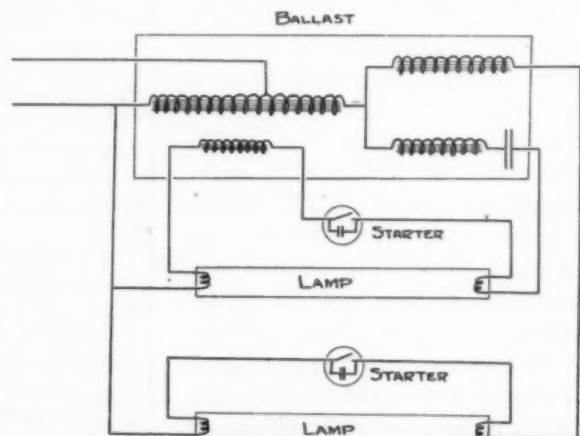
Wiring arrangement for a simple one-lamp unit (up to 20 watts), with ballast circuit.

of the circuit on which they are to be operated. It is reasonably safe to assume that a fixture marked for use on "110 V., 60 Cy." will be provided with a reactance ballast. When a fluorescent lamp is operable on either a-c or d-c circuits, it is quite usual that a selling point is made of this fact, for the unit can then be used at home, or in the office or factory, regardless of whether power is utility-supplied or from an isolated plant (usually d-c). But when this bait is offered, there must be the lower operating efficiency wherever the lamp is

used, as has been noted.

The over-all operating efficiency (units of light output per watt input) of the usual fluorescent lamp and ballast combination (for a-c use only) will run around  $2\frac{1}{2}$  to 3 times that of the incandescent lamp of corresponding watt rating. Of course, this is not the whole story, since the first cost of incandescent lamps and fixtures of ordinary or usual sorts is likely to be considerably below that of corresponding fluorescent fixtures. Where rates for electric current are high, there is a definite economy in using fluorescent lighting; where rates are low, economy of current consumption has to be balanced against other factors such as decorative effects produced, and the reduced radiant heat from the fluorescent type of lamp.

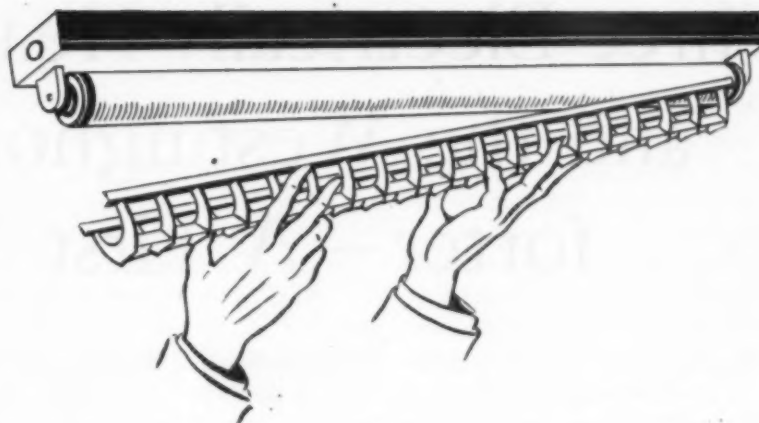
The arc discharge between cathodes of the fluorescent lamp is through mercury vapor, but mercury vapor at such a pressure that the resulting radiation contains little visible light. A large percentage of the radiation is ultra-violet light of a particular wave length, which, when brought to bear on the special powder coating (called a phosphor) on the inside of the tube, causes this powder to fluoresce and give off visible light of a color depending upon the chemical composition of the powder. The exact composition of the phosphors used is not published information, but it has been indicated that zinc silicate and magnesium tungstate are among the materials that will fluoresce in this manner. This generation of light is not due to temperature alone, as is the light from incandescent lamps, and, hence, the light from phosphors is usually referred to as cold light. The pressure of the vapor in the lamp is dependent upon the temperature of the lamp; the ultra-violet generated and the resulting visible light output are likewise variable with temperature. At a temperature of 32°F, the light output of certain lamps will be cut nearly 50 percent and the efficiency



Wiring arrangement for a two-lamp unit using 30- or 40-watt lamps, with high-power-factor ballast circuit.

lowered in almost direct proportion. Where lamps must be used at low temperatures, special lamps designated as "low temperature" types will give greater ease in starting, though still subject to reduction in light output unless the lamps are enclosed (with glass) in order to conserve their heat and thus raise the operating temperature. The 100-watt lamp probably shows least loss of light with decreasing temperature. Drafts over a lamp have an effect similar to lowered air temperature. A local draft on one end of a lamp only may so reduce the temperature at that spot as to cause mercury to condense and form a darkened spot.

The fluorescent lamp is a low brightness light source compared with the incandescent lamp, yet not low enough in brightness to make for eye comfort when the installation happens to be such as to put the bright tube in the direct line of vision. For this reason it is common practice to enclose the lamps back of a translucent diffuser of glass or plastic, or to place louvers or shields to hide the lamps from direct view at the usual viewing angles. Lamp manufacturers in general warn against attaching



*Light diffusers or deflectors are often sold as accessories for application to fluorescent lamps, but their use is likely to be disadvantageous, by reducing the efficiency of the lamp.*

anything to the lamp. Even in well-designed fixtures it is not uncommon, under certain conditions of operation, to find dark spots on the lamps directly over louvers, where mercury has condensed. Various devices are sold intended to act as light diffusers and designed to be attached to the tubes or to the reflectors in such a way as to lie close to the tubes. These are almost sure to produce the unfavorable results just mentioned.

The ultra-violet radiation generated *within* the fluorescent lamp is known to be harmful to the human eye, and this

fact has been the basis for rumors to the effect that the use of the lamps themselves is harmful. The Technical News Bulletin of the National Bureau of Standards (No. 286, Feb. 1941), in a report of "Radiation from Fluorescent Lamps," indicates that the harmful energy is used only to activate the phosphor and does not penetrate the glass tubing appreciably. It is the view of experts, therefore, that the fluorescent lamp does not radiate ultra-violet energy in injurious amounts.

*(Continuation of this article in a later issue.)*



### **Ultra Gloss Furniture Cleaner**



*Ultra Gloss Furniture Cleaner*, "a non-inflammable cleaner which removes old polish and dirt," which sells at \$1 for a 12-oz. tin, is a thin colorless liquid having an odor similar to pine oil or dipentene. Analysis showed the product to con-

sist of a mixture of carbon tetrachloride (about 45%) and petroleum naphtha (about 55%), together with a small amount of other material to furnish odor. A trial of this

product on a varnished surface showed that while it satisfactorily cleaned the surface, it had no apparent harmful effect on the finish. It is believed that the product would be a relatively safe one for use on varnished surfaces.

# Three Electrically Heated Blankets and the Westinghouse Com- forter—A First Report

**T**HE development during the war of electrically heated flying suits, shoes, and gloves appears to have given an impetus to the sale of electrically heated blankets for the home. At least two blankets were of course available before the war; indeed, in 1936 a fatality from electric shock was reported to have occurred from the use of such a blanket in Los Angeles. Some of the present-day blankets, however, appear to be much improved over the pre-war blankets, and the risk of electrocution or of being burned through their use may be only slight. Further tests, however, are now in progress and will be reported as soon as they are completed. Laboratory tests alone, however, cannot be conclusive, for as the Underwriters' Laboratories point out, "Electric heating pads and blankets constructed of combustible material, present certain fire and life hazards which cannot be wholly guarded against by excellence in design and construction."

What advantages does an electric blanket offer? Most people, even if they sleep with their windows open part way in severe weather, do not have much trouble keeping warm, provided they use sufficient bed clothes, but beyond a certain point the bed clothing may become unduly heavy and uncomfortable to sleep under. An electric blanket, on the other

hand, is light in weight (about 5 to 6 pounds) and under favorable conditions can be used alone, without any additional covering.

For those accustomed to sleeping in heated bedrooms, an electric blanket should eliminate the necessity for getting up to procure extra covers when the room temperature falls sharply during the night, as may occur in severe weather. Turned on a few minutes before retiring, the electric blanket can take the icy chill off the sheets. For many people the advantages enumerated will perhaps be considered sufficient to justify the purchase of one or more electric blankets, at least in households where there is no particular problem keeping them clean and undamaged by the perhaps boisterous conduct of active and inquisitive youngsters.

CR's tests to date have included power input, temperature and current leakage measurements. The temperature tests were made on a conventional double bed with a 6-inch hair mattress and a box spring; the mattress was covered with two sheets. In the first two tests with each blanket the blanket was simply laid over the sheets. In a third test the blanket was covered with a light spread. The temperatures were measured with a thermocouple indicator, using a total of 16 thermocouples for

each blanket; 9 of these were distributed between the sheets, 4 were distributed on the underside of each blanket, and 3 on the upper side.

The temperature of the room in which the first series of tests were made was held at approximately 40°F. (A temperature averaging around 40°F or somewhat below is considered as the temperature likely to occur in winter, in a bedroom with a window open, except in quite severe weather.)

## *Temperature Measurements*

The temperatures attained were recorded under four conditions.

1. Blanket (or comforter) alone, with control at maximum setting.
2. Blanket alone, with control set at point at which cycling begins.
3. Blanket with a bedspread, with control at maximum setting.
4. "Pillow test" (an ordinary pillow laid on top of the bedspread at its center).

It should be noted that the temperature rises obtained in these tests are somewhat lower than those which would be obtained under actual sleeping conditions, as the body of the sleeper continuously gives off a very considerable amount of heat, equivalent to perhaps 85 electrical watts. The readings do show, however, something



about the range of temperatures which would occur under extreme conditions. There seems to be no question but that any one of the four blankets tested would provide adequate heat under normal sleeping-room conditions, that is during the larger part of the colder months of the year in climates that are not extremely cold.

The final temperatures attained between the sheets after several hours' operation with a room temperature of 40°F with the control of each blanket set at its top limit, are given in the accompanying table.

The *Simmons* blanket and the *Westinghouse* gave closely similar results; the spread in temperatures for these two read at different locations between the sheets was around 12°F. The *General Electric* gave somewhat lower temperatures, with about the same spread (11°F) among the points between the sheets. The *Wolectra* showed the lowest temperatures of all, probably due to the interference with proper control by the temperature regulator introduced by one of the "safety" thermostats; this blanket also showed the largest point to point temperature variation (20.5°F) of any of the four blankets tested.

### Leakage Tests

In the current leakage test the four blankets were each subjected first to a proof voltage of 1240 volts, with the blankets in normal "as received" condition. This test they all withstood. (Leakage current in each case was less than 0.05 ma. per square foot.) The blankets were then immersed for one hour in a metal tank containing salt water. At the end of that time a proof voltage of 1240 volts, as re-

quired by the Underwriters' tentative standard, was applied for one minute between the blanket circuit and the water. This test was passed successfully by the *Simmons* and the *Wolectra* blankets. (With the latter blanket, because of its circuit arrangement, one terminal of the proof voltage circuit was applied to the primary winding of the transformer and the other to the tank.) The *General Electric* blanket and the *Westinghouse* comforter both showed heavy leakage current (over 200 ma.) at relatively low values of proof-test voltage. This test indicates that it would not be advisable to use either the *General Electric* blanket or the *Westinghouse* in any place where it might be subjected, accidentally or otherwise, to an atmosphere quite high in humidity or to direct moisture (e.g., raindrops or snow or heavy mist on an open porch—especially possible in homes or on porches near salt water, and also perhaps possible even indoors, for example where windows are wide open during a sudden storm, or a roof suddenly springs a leak or water or other fluid is spilled by accident).

### Temperatures Reached Under Blankets

In one test, a pillow was placed centrally on top of the spread which covered the blanket to determine what would occur if during actual use, any object such as clothing or bedding was laid on the blanket and left on it in such a way as to cover only a small portion of the blanket, at which no thermostat happened to be present.) With all the blankets except the *Wolectra* the temperatures under the pillow reached above 200°F, without

any action of any of the temperature limiting devices (safety thermostats) to interrupt the current supply to the blanket. This temperature, while not sufficient to involve risk of starting a fire, is getting up toward a point that would be too hot for full safety, though there seems to be no likelihood of anyone's being burned by the blanket at that temperature, on account of the small *heat capacity* of the blanket material and the quick loss of heat by the surface fibers to the skin of the person under it. It would appear, however, that care should be taken when using an electric blanket never to place anything over a small portion or section of the blanket which would act to retard the passage of heat in the normal way to the air of the room.

### Effectiveness of the Controls

To determine the effect of variations in room temperatures, additional tests were made on all four blankets at a room temperature of approximately 60°F, with the controls set at the maximum position.

It was found that the *Simmons* blanket maintained an average temperature of 76°F between the sheets with the room at 40°F and with the control set at its maximum point of 95. When the room temperature was raised by 20°F to 60°F, the temperature between the sheets increased by 12°F to 88°F. The *Simmons* Company claims their control "automatically maintains selected temperature in the blanket *regardless of changing room temperatures*" (italics ours—CR). The data just presented show that it actually did nothing of the sort, for it permitted the temperature between the sheets to

Brand	Temperatures Between the Sheets, in °F								Pillow on Blanket
	Blanket Alone				Blanket and Spread				Maximum, temperature directly beneath pillow
	Average	Maximum	Minimum	Range, Max.—Min.	Average	Maximum	Minimum	Range, Max.—Min.	
<i>Simmons</i>	76.0	81.5	71.5	10.0	85.5	92.5	80.0	12.5	216
<i>General Electric</i>	64.0	67.0	62.0	5.0	69.0	75.0	64.0	11.0	204
<i>Westinghouse Comforter</i>	77.0	85.0	72.5	12.5	86.5	92.5	80.0	12.5	224
<i>Woollectra*</i>	59.5	65.5	52.0	13.5	63.5	72.5	52.0	20.5	155*

\*The readings shown for this blanket are not too reliable because one of the "safety" thermostats in the blanket was apparently set by its manufacturer at an abnormally low temperature (judged to be about 75°F). For example, the figure (155) in the last column would very likely be much higher with correct functioning of the "safety" thermostat of the *Woollectra*—as indeed would all the other values for this blanket.

rise by an amount equal to about 60 percent of the rise in room temperature. The *Woollectra* blanket maintained an average temperature between the sheets of 59.5°F with the room temperature at 40°F. When the room temperature was raised to 60°F the temperature between the sheets rose to 71.5°F. This temperature rise between the sheets still corresponds to poor regulation. The *Westinghouse* showed a rise of temperature between the sheets of 13°F for a rise in room temperature of 20°F, which also corresponds to poor regulation. Under similar conditions the *General Electric* gave disappointing results, for raising the temperature of the room by 20° brought the temperature between the sheets up by almost an equal amount, so that the blanket had almost negligible regulating ability. Yet *General Electric* claimed "no matter how the bedroom temperature changes during the night or from night to night the Automatic Blanket keeps you completely comfortable." With the control set at "High," the *General Electric* called for

heat continuously when the room temperature fell to about 66°F. As the room temperature falls below this point, no further supply of heat is forthcoming and the user thereafter must suffer in silence, unless he disregards *General Electric's* statement that "no additional covering is necessary" and gets additional bed coverings to help him keep warm. (The *Simmons* blanket, whose heat supply is considerably more adequate than *General Electric's*, does admit that some users may require additional covering when room temperature falls below 35°F.) With the control set at 4 the *G.E.* blanket will operate continuously at room temperatures below 40°F, with the result that the same temperature rise will be produced beneath the blanket no matter what the control is set at in the range from "4" to "High," and that temperature will often be too low, being only about 24°F above that of the room. Thus at a room temperature of 30°F, the temperature between the sheets, neglecting the heat given off by the sleeper's body, will be about

54°F. (For some people this would be definitely too low for comfortable sleeping.)

The cost of operation of electric blankets is not particularly high, though it is certainly not negligible. Operating continuously, with control at maximum setting for eight hours the *Westinghouse* consumed 1272 watt-hours, the *Simmons* 1904 watt-hours, and the *General Electric* 1496 watt-hours. Thus the operating cost per month would probably not exceed about \$1.55 (for the *Westinghouse*), \$1.80 (for the *General Electric*), and \$2.30 (for the *Simmons*) with electricity at 4 cents per kilowatt-hour. (Figures are not given for the *Woollectra*, on account of fault reported in footnote of table.) The *General Electric* consumed about 20 percent more current than the *Westinghouse*, yet it failed to produce as high temperatures, by a very considerable amount, namely 13°F.

Special care must be taken in laundering any electric blanket. While some manufacturers' instructions, such as *General Electric's*, say that the blanket can be laundered in a

washing machine, at least one definitely warns against this method; the majority seem to agree that their electric blankets should never be dry cleaned. The *Woollectra* instructions state, however, that it can be either dry cleaned or laundered. When washing any electric blanket, lukewarm water at not over 100°F (90°F for *Simmons*) and mild soap must be used, and excess water removed by squeezing without twisting or wringing. The blanket must be *thoroughly* and completely dried before use. The *Westinghouse* comforter is a special problem. The rayon cover can only be dry cleaned; the interior warming unit can be washed, must not be dry cleaned.

Of the four blankets tested, the *Simmons Electronic* was the only one that was designed to make allowance for the varying amount of heat given off by the body of the sleeper. One element of the thermostat in the *Simmons* is a long nickel wire which follows the heating wire throughout the blanket, and the control is thus affected both by changes in room temperature and by the heat transferred from the body outward through the blanket. CR feels that this is a very important advance in the principles of design of electrically-heated blankets.

The following listings are to be regarded as distinctly tentative and subject to revision, to some degree, as other data are accumulated. (Additional test work is continuing on this project, and will be carried on for some months. The subject is so new and the possibilities so varied regarding service life, shock hazard, etc., that much work must still be done before the consumer can be given a

reasonably certain opinion concerning the buying and use of electrically-heated blankets of any make.) In the listings that follow, the watts input figures are the manufacturers' rating; the actual measured watts follow, in parentheses, thus: 215 (238).

## B. Intermediate

*Simmons Electronic*, Style A1 (*Simmons Co.*, 1 Park Ave., New York 16) \$41.75. Labeled 75% wool—25% cotton. Marked size, 72 in. x 86 in.; actual size, 72 in. x 82 in. Weight of blanket, 5.74 lb.; weight of control and cord, 2.99 lb. Maximum watts input, 215 (238). Control contained three electronic tubes and a relay. Dial of control was marked from 65 to 95; on and off position not marked (definitely undesirable). The heating element, which was in the form of a continuous insulated wire, was paralleled by a temperature-sensitive wire constituting a resistance thermometer, which acted through the electronic tube circuit to call for more or less heat as the room temperature or the sleepers' bodily heat output changed. Temperature regulation somewhat better than that of *General Electric* but the *Simmons* nevertheless permitted the temperature between the sheets to rise 12°F when room temperature increased by 20°F. Relay of temperature control device made a slight "bong" or pinging sound at rather frequent intervals when in use, that might at times be annoying to a person who does not tolerate extraneous noise well in his sleeping room. Leakage current under wet conditions appreciable but considered satisfactory. on blanket tested. Radio interference, a slight click, considered not objectionable. Approved by Underwriters' Laboratories.

## C. Not Recommended

*General Electric*, Cat. No. PB5A1 (*General Electric Co.*, Bridgeport, Conn.) \$38.10. Labeled 50% wool, 25% rayon, 25% cotton. Marked size, 72 in. x 86 in.; actual size, 72 in. x 83 in. Weight of blanket, 5.23 lb.; weight of control and cord, 1.23 lb. Maximum watts input, 180 (187). Control dial marked: Low, 2, 3, 4,

5, 6, 7, 8, and High. Equipped with indicator which glows when current is on (desirable). Heating element consisted of insulated spiral-wound wire; small "safety" thermostats in series in the circuit are provided to interrupt the circuit to prevent overheating. Leakage current very high under wet conditions—over 200 milliamperes. Temperature regulation poor. If a temperature of 70°F under blanket is to be attained, the room temperature must not fall below 46 to 47°F. Radio interference, appreciable amount (undesirable). Approved by Underwriters' Laboratories.

*Westinghouse Electric Comforter*, Model EC-61 (*Westinghouse Electric Corp.*, Mansfield, Ohio) \$49.85. Had removable rayon satin cover, with cotton warming sheet inside. Actual size, 72 in. x 84 in. Weight of blanket, 6.33 lb.; weight of control and cord, 1.15 lb. Maximum watts input, 150 (159). Leakage current under wet conditions, very high—over 200 milliamperes. Temperature regulation poor. Radio interference, appreciable amount (undesirable).

*Woollectra*, Model No. 100B (*Woollectra Blanket Mfg. Co.*, Piqua, Ohio) \$45 (Federal tax included). Labeled 100% pure wool. Marked size, 84 in. x 72 in.; actual size, 81 in. x 71 in. Weight of blanket, 4.85 lb.; weight of control, including transformer, and cord, 10.07 lb. Maximum watts input, 180 (184.5). Controls consisted of a control box which contained a thermostat and switch and a transformer (supplying the terminals of the blanket itself at the low and relatively safe potential of 20 volts). Control box dial causes a series of five color screens to pass in front of pilot light; no indication of meaning of temperature settings, which were indicated only by different colors (red [high], orange, yellow, green, and blue [low]) showing for different temperatures; off position of switch not marked, though it is very desirable that such marking should be present (since pilot lamp might fail). Leakage current under both wet and dry conditions, very low—less than 0.05 milliamperes. Radio interference, least of brands tested. Might warrant a B rating if the peculiar action of safety thermostats found in the sample tested is not present in other samples.



# New Tire and Tube

THE United States Rubber Co. is now displaying a new type of tire and tube which appears to offer a number of advantages from the standpoint of increasing tire life and driving safety. Information on these two items was a closely guarded secret until the company was actually ready to market them.

The new tire has a flatter and narrower tread and uses less rubber than the conventional type. The cross section is also slightly larger (air volume is about 14 percent greater), so that the tires are to be sold as "oversize," at a premium price. To specify the new type, a new method of designation will be used. For instance, instead of calling a tire a 6.00-16, it will be termed a 60-16 (sixty-sixteen). Larger sizes are the 65, 70, etc.; the 60 size replaces the 6.00, etc. However, the new tire uses the next larger size of inner tube, such as a 6.50-16 inner tube for a 60-16 tire. Either a regular inner tube or one of the new type to be mentioned later may be used. The new tires are called the *Air Ride* type by the manufacturer.

The increase in area (section) of the new tire permits it to be run at about 8 percent lower air pressure; on account of this, better riding quality and increased safety—due to flatter tread—are claimed. These factors tend to offset the lower coefficient of friction inherent in the types of synthetic rubbers which have been used since the beginning of the war (and which must be used in the future to a very considerable extent if our synthetic rubber plants and synthetic tire industry are



*Lifeguard* inner tube

to be kept alive and to gain necessary experience).

A companion to the new tire, which can be used in any tire, is the new *Air Guard* inner tube. While not puncture-proof or blowout-proof, it prevents *rapid* leakage of air from the tube when it is punctured. The principle applied to attain this result is similar to that used in the self-sealing fuel tanks developed for airplanes during the war. When a puncture occurs, the tube squeezes around the tack or nail tightly enough to reduce or prevent leakage, or if the nail is removed, closes upon itself to obtain the same effect; there is a limit, no doubt, to the size of nail hole which can be sufficiently well sealed.

Externally the tube has a series of thick and thin squares about 1-½ inches across forming a waffle-like pattern over the tread area. Under these squares is a soft rubber which is collapsed when the tube is in the tire under pressure. The soft rubber thus can expand or flow into a hole or around a

nail when a puncture takes place. The increase in thickness and soft rubber content is not sufficient to increase materially the over-all weight of the tube. While the tubes are said to be largely self-sealing, they may still require to be patched, and this is likely to be difficult because of the tubes' uneven surface.

The new product seems to offer a reasonable answer to the demand for an inner tube possessing additional safety and convenience qualities, while not being open to objections on the ground of materially increased weight, or difficulty in maintaining balance (as well as higher cost) that can be raised against the double-section type of tube, such as *Lifeguard*. These new tubes, in spite of their extra cost, may be considered by many as a good investment for use with any tire, so that when a flat occurs, the tire is less likely than ordinarily to be completely ruined in running the short distance necessary before the car can be brought to a stop. This difficulty has been considered more serious with synthetic tires, but as the use of natural rubber increases in these tires—now about 22%—the difference between the two types is expected to be greatly diminished or to disappear. (These new U.S. tires are said to contain more than 50% natural rubber and may later contain a higher percentage, up to 70% or more.)

Prices on either tire or tube have not been released as this is written, but undoubtedly each will cost a considerable extra sum over the normal type. However, the additional cost of the tube is not expected to be nearly as much as that of the double-tube type (*Lifeguard*) mentioned above.

## Making Soap at Home

**T**HE long-continued shortage of soap and the high prices asked have brought suggestions from subscribers that an article on making soap at home would be welcome at this time, but when the average housewife in a small home notes that the standard soap recipe calls for 6 pounds of grease, she will, we fear, think that the instructions do not apply to her problem. It is true that fats are almost unbelievably expensive right now—even fat scraps cost about 25 cents a pound when bought from the butcher (with wide local variations, no doubt). As most housewives have a chance to accumulate some waste fats, and if every bit of left-over cooking fat is saved and utilized in the soap kettle, the homemaker will be well repaid for her efforts, so long as soap for kitchen use remains as costly as it is nowadays.

A typical recipe for cold-process soap, found in extension service pamphlets, on lye cans, etc., is as follows:

13 ounces of lye (approximate contents of one large can)  
2½ pints of cold water  
6 pounds of clean, salt-free fat

This will produce about 9 pounds of finished hard soap. The recipe can, of course, be cut down proportionately to the amount of fat which it is possible to scrape together, but it is better, when practicable, to save fat longer so as to be able to use the actual quantities given. Many variations of the basic recipe have been worked

out by enterprising housewives to suit individual purposes.

### *Choice and Handling of Fats and Lye*

Almost any kind of fat, except that from poultry, can be used—vegetable oils, tallow, lard, or drippings saved in cooking, or a combination of several kinds. The mixed greases usually serve best, but any and all kinds of grease must be clarified and carefully cleaned of salt before going into the soap kettle. (Poultry fat makes a soft, spongy soap and can only be used sparingly, and when mixed with more suitable types.)

Grease that has been burned too badly cannot be used, but if only mildly burned and dirty, clarification can be accomplished by melting and straining the fat and then frying a few pieces of potato in it. To remove the salt that is always present, the fat and approximately an equal amount of water should be heated together (not boiled), removed from the fire, and stirred; then cold water is added in the proportion of one quart to each gallon of the hot mixture. This causes impurities and soluble matter to settle to the bottom of the kettle; the clean fat will rise to form a solid cake on top, which can be easily removed for use.

High-grade, uniformly pure lye is necessary for successful soap making. Labels on lye cans should be read carefully to note caustic soda (sodium

hydroxide) content, which must not be appreciably less than 95%. If much less than this, a decreased amount of grease should be used.

### *How to Proceed*

Dissolve the lye in water in an iron or enamelware kettle (never aluminum), using a wooden spoon or stick for stirring. As the chemical reaction involved in dissolving lye in water generates heat, the lye solution will have to be set aside to cool considerably before it can be added to the grease.

Meanwhile, the clean fat should be melted and also allowed to cool to the correct temperature or until a spoon leaves a track in stirring.

Temperature is extremely important, according to various sets of directions, but depends to some extent upon the type of fat used. Good directions for soap making should contain a table giving correct temperatures for lye solution and fat, for separation instead of saponification may take place if an attempt is made to combine the two ingredients at the wrong temperatures. A practical table of temperatures, taken from Extension Circular 11-402 of the University of Nebraska College of Agriculture, is on page 14.

The cooled lye solution should be poured into the fat in a thin steady stream while the mixture is stirred slowly but steadily, always in the same direction. Jerky, hard, fast stirring may cause separation in the mixture. If the method is right, the mixture should become honey-like in consistency and after 10 to 20 minutes should thicken, with all the lye mixed thoroughly into the fat. When the spoon leaves a track,

the mixture is poured into a cardboard box (or other container suitable for molding the soap), that has first been lined with wax paper and a clean, damp, cotton cloth (the wax paper next to the box). The box should be covered with a board or cardboard and the whole wrapped heavily to keep the soap from cooling too quickly, and then left undisturbed for 24 hours. The soap may then be lifted from the mold and cut into conveniently sized cakes; a knife may be used, but a fine wire is perhaps best for this purpose. The cakes will be ready for use after being left to dry out; the drying should take place at a temperature that is always above freezing, and the cakes protected

#### Kind of fat

Sweet lard or other soft fat  
Soft rancid fat  
Lard and tallow  
(half and half)  
All tallow

Temperature  
of fat, °F

Temperature  
of lye solution, °F

80-85	70-75
97-100	75-80
100-110	80-85
120-130	90-95

from drafts for about 2 weeks.

Compared with the factory-made product, the quality of homemade soap is certain to vary widely, because no two lots of fat accumulated in any household would be identical in composition and chemical means of control of the raw materials are of course unavailable. Principal characteristics of a good laundry soap are that it should not cause injury to the skin or clothing, should not feel greasy, should have only

slight odor, and when a thin piece is cut, comes off in a curl. If the finished product has free alkalinity (free lye), the effect may be due to salt that was present in the fat, insufficient mixing of the lye solution and the fat, or inaccuracy in one or more measurements.

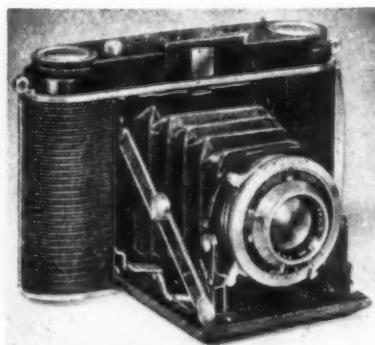
Homemade soap seldom lathers as well as commercial soap, because the type of fat available in most homes does not produce a freely lathering soap.

## A Folding Hand Camera, and a Stereo Camera

### Folding Camera

#### B. Intermediate

*Anso B2 Speedex*, No. JN123 (Anso, Division of General Aniline and Film Corp., Binghamton, N. Y.) \$45, including Federal excise tax. *Anso Anastigmat* f:4.5 lens of 85 mm. focal length. Takes 12 pictures each about  $2\frac{1}{4} \times 2\frac{1}{4}$  inches on No. 120 roll (designated B2 by Anso). Non-automatic shutter (of a type requiring pre-setting—desirable) with rated speeds of 1/250, 1/100, 1/50, 1/25, 1/10, 1/5, 1/2, time, and bulb. Focusing from  $3\frac{1}{2}$  feet to infinity by rotating front lens cell. Shutter release in form of button on top of camera; provision for use of cable release if desired. Eyelets provided on camera for attachment of neckcord, which is supplied. Quality of lens, mediocre; would perhaps permit reasonably satisfactory enlargements of about 3X. Definition was fairly uniform over picture area, and in this respect lens was superior to that of the *Kodak Reflex* listed in CR's August 1946 Bulletin. Accuracy of shutter speeds about average. Focusing scale accurate. Camera was of convenient size and shape. Design and workmanship good. It



*Anso B2 Speedex*, No. JN123

is unfortunate that a camera with so many good points should not have been equipped with a better lens. Would be satisfactory for the non-critical user who does not demand enlargements of considerable size—and that would certainly apply to most users—as it represents rather unusually good dollar value in this era of notably high camera prices. 1

### Stereo Camera

#### C. Not Recommended

*Haneel Tri-Vision Stereo* (The Haneel

Co., Los Angeles) \$32.65, including Federal excise tax, plus \$13.80 for viewer (not taxed). Two coated f:8 lenses spaced about 60 mm. apart; focal length not marked, but probably between 50 and 60 mm. Lens could be stopped down to f:11 and f:16. Takes 6 stereo pairs on No. 828 (*Bantam*) roll film; each single frame is about  $27 \times 28$  mm. ( $1\frac{1}{16}$  inches  $\times$   $1\frac{3}{32}$  inches). This is a very small stereo frame size. The two normal stereo sizes are  $2\frac{1}{8} \times 2\frac{3}{8}$  in. approximately, and  $1\frac{1}{2} \times 1\frac{1}{8}$  in. approximately; respective plate sizes,  $60 \times 130$  mm. and  $45 \times 107$  mm.; even the latter is too small for really good stereo work. Simple type shutter similar to that used on the box *Brownie* camera. Fixed focus; principal objects should be between 5 and 9 feet from camera, secondary objects 9 to 12 feet, and backgrounds 12 feet to infinity. Camera lacked pressure plate, which should be present in any properly designed camera to hold film flat, especially in a camera with the wide distance between film spools which this one had ( $4\frac{3}{4}$  inches, approximately). Lens quality poor; pictures taken using a tripod, as recommended by manufacturer, and within 5 to 9 ft. range, were unsharp.



Shutter unsatisfactory; pressure on the operating button sometimes resulted in a premature exposure in addition to the regular exposure. "Bulb" exposures required holding down a second button while the first one was depressed, and the considerable force required to operate the shutter made blurred pictures al-

most a certainty unless a good tripod was used, which would be quite a disadvantage in much stereo work. With shutter set for snapshots and at largest stop f:8, *Kodachrome* was so badly underexposed outdoors, that little of the subject matter could be seen (though the light was of such strength as should have produced a

negative only moderately underexposed). A bulb exposure was fair as to density, but extremely unsharp. Back insecurely held by two weak clamping springs; could easily be accidentally knocked off while camera was being carried. Judged to be an unsatisfactory camera and decidedly not a bargain at its price. 1



TESTS on eight more washing machines are now nearing completion. Of these, four are of the wringer type, three of the spinner or centrifugal dryer type, and one is an "automatic" washer, the *Launderall*. There have been many inquiries about the *Launderall*, which is a new make, and on that account it was thought advisable, in the interest of subscribers who must actively consider the purchase of a washing machine at this time, to issue a preliminary report on its performance without waiting for the completion of the study and analysis of all the data.

The *Launderall* is an automatic machine somewhat similar to the *Bendix* and like the latter, requires bolting to the floor; for greatest convenience it should be permanently connected to the hot and cold water supply and to a drain. A fairly large supply of hot water at a temperature of not less than 160°F (preferably 170 to 180°F) is required, for the *Launderall* uses approximately 16 gallons of hot water per wash, irrespective of whether the control is set at "Hot" or "Warm." The total amount of water (hot plus cold) used for one complete cycle was found to be 25.3 gallons with the control set at "Hot" or 28 gallons with the control set at "Warm." The total time required for the washing, rinsing, and centri-

fugal drying of one tubful (10 lb. dry weight) of clothes was about 38 minutes (about the same time as *Bendix*).

The washing ability of the *Launderall* was tested by the customary method of washing samples (sewed to sheeting material) that had previously been soiled by a standard laboratory method. The reflectance (whiteness) of these samples before and after washing was measured by a photoelectric instrument known as a reflectometer. (Two types of reflectometer were used, the Hunter and the Photovolt; results obtained by these two instruments were quite consistent.) The difference in meter-readings corresponded to the whitening of the washed material produced by the washing process, and gave a measure of the relative washing effectiveness of the machine. Tentatively, CR considers that the washing ability of the *Launderall* machine was unsatisfactorily low, for it was markedly below that of the *Bendix* (an "automatic" washer reported in CR's May 1946 BULLETIN as fairly good in washing ability), and the *Launderall's* efficiency in cleansing was very far below that of the *Maytag* (the *May-*

*tag*, a non-automatic or conventional-type washer, was found to be the best in washing ability of the seven washers reported on up to the date of this report).

The *Launderall's* effectiveness in drying clothes was good. While this machine may be satisfactory for washing lightly soiled clothes, and is convenient in operation, its effectiveness in washing would appear to make it relatively unsuitable for badly soiled clothing; some perhaps would regard it as not too suitable for washing "medium-dirty" clothes.

The following rating is tentative, pending completion of the tests.

#### B. Intermediate

*Launderall*, Model LS1 (F. L. Jacobs Co., Detroit) \$299.95, Zone 1. Fully automatic, rotating cylinder type. Makers capacity rating, 10 lb. of dry clothes. Required approximately 16 gallons of hot water plus 9½ or 12 gallons of cold water, depending upon control setting, for the complete cycle, which required about 38 minutes. Washing effectiveness comparatively low, appreciably less than the *Bendix*, also an automatic machine. Effectiveness in drying clothes, good (about the same as *Maytag*). Vibration both during washing and spin-drying, considerable. Ease of cleaning tub, difficult; of servicing, about average. Construction judged good. 3

### *Preliminary Report on Launderall Automatic Washing Machine*

## A "Trojan" Binocular



THE accompanying picture shows a kind of field glass or "sports glass" which has recently been sold by one of Chicago's best-known department stores and will be offered by many others at prices around \$2.95 (plus 20% Federal excise tax), perhaps several dollars higher in some cases. The particular glass illustrated, and most of the others that will be sold at similar prices, pretty nearly deserves to be called an optical atrocity. It does not bear the manufacturer's name and address, and after a brief examination of the instrument, one can guess why the maker has not put his name on the product. The body of the instrument is of thin sheet metal, and like that of many another cheap glass, it has been formed into such shape as to give the unschooled purchaser the false impression that it is a *prism* binocular—and hence an instrument of many degrees finer construction and performance than it actually is. Actually, the *Trojan* glass is a pair of simple Galilean telescopes; this is the simplest, least costly to make, and in general the least satisfactory of all telescopic systems. A tag notes that the

glass is American made, but if this is typical of American ideas of design and workmanship of low-priced binoculars, the trade should surely be permitted to go back to the French manufacturers.

The accompanying diagram (Figure 1) shows the lens system of a normal Galilean telescope with achromatic objective. Through the *Trojan* binoculars, objects are seen as surrounded by colored fringes, which would indicate that no attempt was made to make the objective achromatic, although achromatizing had been done with even mediocre opera glasses, priced as low as \$7 before the war. The objectives appear to be cheap, double-convex lenses of the type found in 5-and-10-cent store magnifiers, which of course have no place in anything sold for use as an opera glass or field glass. The glasses are described on the box as powerful; that too is a highly misleading statement, since they are actually of quite low power (approx. 2X). (The advertising claimed three power and a "wide field with brilliant illumination.")

The tube which carries the eyepiece does not fit accurately into the body of the binocular,

but in order to cheapen the construction, is held in position by a thin ring of a felt-like material. This means, of course, that the optical axes of the eyepiece and of the objective are not held in a position of coincidence, but are free to take almost any relative positions (they can wobble at will). The optical axis of the eyepiece, which determines the direction in which the eye should look, therefore does not necessarily pass perpendicularly through the center of the objective, but through some other point and at an angle to it. The ability of the eye to accommodate itself to adverse conditions and the very low magnification of the glass make it possible to see through the glass after a fashion, but only at the cost of considerable eyestrain.

Not only should each side of the binocular be in line, but the axes of the two sides should be parallel within a few min-

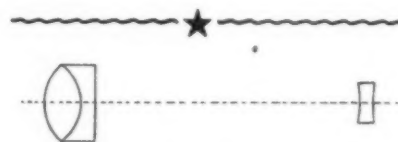


Figure 1

Normal Galilean telescope lens system with achromatic objective.

utes of arc. (A minute is 1/60 of a degree; 1/5400 of a right angle.) This condition obviously cannot be fulfilled with the construction described, and hence there is an additional cause of eyestrain. The construction of this glass suggests that the maker did not expect it to be used seriously, but produced it as a toy. (The advertising of the glass by the department store did not in the least suggest this limita-

tion.) Since at least a possibility of eyestrain exists, however, the use of the glass even as a child's toy may by some be considered questionable. In spite of the fine binoculars that have been made and offered in recent years, binoculars of the poor type and grade just described have been widely sold in department stores, variety stores, pawnshops, and even in sporting goods stores; clerks in stores in the last-named category certainly should know better. One method by which glasses of this very poor grade can be distinguished from what might be called genuine field glasses is by the fact that good glasses always have their eye-pieces and objectives secured



Figure 2

Galilean telescope lens system with lens axis out of line (condition exaggerated for the purpose of illustration).

by means of finely-cut screw threads so that all four of these lenses can be unscrewed. In the *Trojan* glass, these lenses were apparently pressed into place, and there was no evident means by which either eye-pieces or objectives could be removed.

The prospective purchaser of a binocular is advised to avoid

merchandise of this type. A glass similar, if not identical, to the *Trojan* was sold by one of the big mail-order houses in 1940 for \$1.19. Sears, Roebuck and Montgomery Ward priced their lower grade non-prism glasses (pre-war) at about \$3 to \$12; the minimum price of glasses with achromatic lenses was about \$7; probably the current price would be about twice that figure. A reasonably well-made Galilean glass with achromatic objectives will always be priced well above the \$2.95 asked for the *Trojan*, while a good new prism binocular, which the design of the *Trojan* imitates, will necessarily cost many times that amount, perhaps \$60 to \$100.



## Three Fountain Pens

THE *Waterman's Crusader* Fountain Pen seems to be a good fountain pen for \$5, considering present-day market conditions and the very high prices asked for ball-point and other poor pens. The one purchased by Consumers' Research had a blue barrel, a silver-colored metal alloy (called "lumalloy") cap, and an unusually small gold pen point with iridium tip; of the pen only about 5/16 inch projected beyond the enclosing point section. The filler was of the old-fashioned type with which a single stroke of the filling lever fills the barrel. (This is the most desirable arrangement.) The pen was labeled "517 Fine Flex" which, according to the description sheet enclosed with the pen, means that the point "permits very fine shading. For Pitman shorthand." Although the pen

was not purchased for exclusive stenographic use, an experienced secretary using Pitman shorthand tried the pen for shorthand writing and reported it suitable for the purpose since the line was readily changed from fine to a wider line by a moderate change of writing pressure.

This pen had the same advantage as was possessed by the *Parker 51*, of a well-shrouded point which should protect it from damage by excessive deflection when used by different persons, a characteristic that is often desirable in a pen which must on occasion be used by others than its owner, as are the pens owned by salesmen, real estate men, bankers, and others.

The point could be exchanged for another if the purchaser found it unsuited for his handwriting, according to a leaflet

enclosed with the pen.

The cap was of the desirable slip-on type similar to the *Parker 51*, *Eversharp CA Repeater*, etc., a type of cap which is more conveniently and quickly used than the kind which must be screwed on and off.

The *Sheaffer Cadet* at \$2.75 and a *Sheaffer* pen at \$3.50 with no identification other than the regular Sheaffer trademark and the number 350 on the barrel, seemed to be practically identical pens. They were the same over-all size; both had the same type of very narrow anti-split band rolled over the edge of the cap (made of plastic); both had screw-on caps; visible ink supply; and single-stroke lever filling mechanism. The *Cadet* pen was marked 23 on the point and 275 on the barrel, while the other pen was marked 33 on the point and 350



on the barrel (evidently the markings on the barrel were indications to the dealer of the manufacturer's suggested selling price). The lever filling mechanism can be considered an improvement over the pump-filling mechanism used on some previous similar *Sheaffer* models, which gave trouble in some cases and did not have significant advantage over the familiar and long-tried lever type used on the pens being dis-

cussed in this brief analysis.

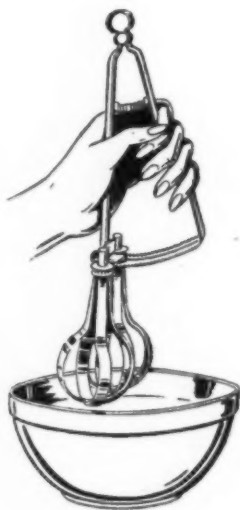
Points of both pens were well finished and writing was even, but the ink flow in the \$3.50 pen seemed somewhat more uniform and the ink capacity of the *Cadet* (\$2.75) was slightly smaller. Otherwise there was little to choose between them, and it was judged that either one of the *Sheaffer* pens would prove a satisfactory purchase for most users.

The ink capacity of all three pens under discussion was disappointingly small. Each held less than 1 cc. of ink. Nevertheless, the fact that it is possible to report purchases of three medium-priced pens that were otherwise satisfactory should be encouraging to all consumers who are tired of the high prices which they had to pay during the war for pens, that were often of unknown brand or mediocre quality—or worse.

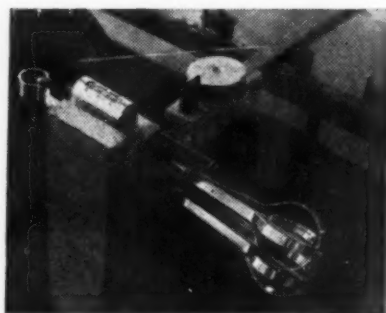
## "One-Hand"

*One-Hand-Wip* (Eagle Precision Mfg. Corp., Long Island City, N.Y.), selling for \$1.50 at department stores, is an egg beater which is designed on the theory, apparently, that the person whose one hand rocks the cradle might want to do something constructive at the kitchen table with the other. The beater consists of a handle shaped like a letter V upside down, something like a pair of sugar tongs, with beaters and gears attached to one side arm and a toothed rack to the other. When the sides of the V are squeezed, the toothed rack engages with the gear teeth on the pair of beaters and causes them to rotate. When the hand pressure is released at the end of a stroke, a spring restores the two arms of the tongs to their original open position; during this reverse stroke, the beaters revolve in the opposite direction.

The appliance does a quick and effective job on egg whites,



but it was found awkward and tiring to use. Moreover, if it were operated in the manner shown in the picture on the



The *One-Hand-Wip* shown in laboratory set-up for abbreviated wear test.

## Egg Beater

box, the end of the toothed rack, already mentioned, would strike the wrist of the operator. The housewives who tried the beater agreed that if one had the strength to operate the beater for the requisite period, it would be satisfactory for its purpose. One-hand operation is an advantage for some uses of a beater, but on account of the stiff operation of the *One-Hand-Wip*, most women, we believe, would find it necessary to change hands once or twice during the beating of the white of a single egg. The device was given a brief wear test amounting to 7800 strokes, within something less than 3 hours running (46 strokes—complete reciprocating movements—per minute) and examination of the gears and toothed rack indicated that a significant amount of wear was occurring. From this it might be judged that the device would not have a very long life if given hard use in a busy kitchen.

# Killing Germs with Lamps

## Disinfection by Ultraviolet Light

FOR about twenty years after Louis Pasteur proved, in 1861, that air-borne microorganisms could cause putrefaction and fermentation, it was commonly supposed that about all communicable diseases could be transmitted by microorganisms carried through the air. Then a number of experiments—many of which now appear to have been faulty—seemed to prove that diseases were not transmitted by air but by direct contact, or by contact with intermediate liquids or solids. Much ridicule was heaped on the concept of air-transmission of disease-producing organisms. Now, in the light of more recent and careful experiments, it appears certain that a number of important diseases can be transmitted by air; among those reported as commonly air-borne are: tuberculosis, smallpox, chicken pox, diphtheria, common cold, measles, mumps, whooping cough, influenza, pneumonia, streptococcus infections (including scarlet fever), and psittacosis. Further research will probably show that some diseases are primarily borne by air, that others cannot be so transmitted, and that still others are commonly spread either by contact or by air. It is now thought that inhalation into the respiratory tract is the most common route by which air-borne infectious agents gain access to the body.

With the knowledge that diseases, such as typhoid fever

and cholera, were transmitted by drinking water came the problem of disinfection of water supplies; with the knowledge of air-transmission comes the problem of disinfection of air. This latter problem is concerned not only with the selection of effective agents and methods for destroying infectious material in air, but also, strangely enough, with the possibility that air disinfection may, in some cases, be undesirable!

The undesirability referred to arises in the fact that reduced resistance to some air-borne diseases might be developed in persons who have been protected by air disinfection; as a result, the severity of the diseases would be increased for those members of the group who had been so unfortunate as to be exposed to them at a time when they were not protected. While the phenomenon of reduced disease-resistance of protected individuals is well known, the effect of partially or completely protecting a group of people against air-borne infection for varying periods of time has not been thoroughly investigated, so that the effect of such practice on the over-all health of the group and its community cannot be predicted. The element of danger involved here is well recognized by authorities in this field.

On this whole question it is proper to note that there is a

possibility that the use of partial disinfection of air may be found by future research to *reduce* the severity of some diseases either by direct attenuation of the virulence of microorganisms or by partial interruptions of the chains of transmission of disease-producers from one person to another, by which transmission process the virulence is thought to increase. Thus it is at least possible that partial disinfection of air might reduce the severity of some diseases and yet not rob those protected of their resistance to diseases by air-borne agents.

One expert discussing this point notes that while in some rare cases it may be desirable for children to have certain diseases when young in order to avoid more serious or dangerous illness when older, exposure should certainly be controlled and timed for each child, depending upon his state of general health, and upon the basis of the particular disease involved. He also makes the point that by the time control of air-borne infection has reached the state of skill and completeness that control of water-borne infection has, we should presumably have means of active immunization against the common diseases such as measles, mumps, and chicken pox which would be the equivalent of those used against whooping cough, diphtheria, and scarlet fever. With such means at hand, of course, there

would be no point in allowing children to catch a disease in order to prevent a later more serious illness.

As to colds, since an attack does not produce a lasting immunity, there would be no point in allowing a large group of people to come down with a cold when this can be avoided, since there would be no future gain thereby in the way of increased immunity.

In places where there is heavy exposure to respiratory diseases, as in certain hospitals, it now seems wise to provide patients, doctors, and interns with the additional protection of air sterilization. A patient who is getting well from one disease should certainly be protected by every means from other diseases. Rheumatic fever, a disease which is aggravated by repeated attacks from streptococci, some of which are air-borne, is one disease in which disinfection of the air might prove of value—but this remains to be determined.

There are several effective agents for sterilization of air; heat, glycol vapors (especially the vapors of propylene glycol and triethylene glycol), ozone, and ultraviolet radiation are among the more effective. Ultraviolet radiation has several distinct advantages over the other agents; it adds nothing to the air which might prove harmful, is relatively inexpensive, and is one of the most effective means. The most convenient sources of ultraviolet radiation are the sun, and electric discharges in air or other gases. Of the various kinds of electric discharges, the low-pressure mercury-vapor arc is especially suitable since the largest part of the ultraviolet energy produced is of a wavelength very close to that most

effective for killing bacteria. Just how effective mercury-arc lamps are in killing microorganisms (bacteria, molds, viruses, etc.) and in preventing disease under various circumstances are matters which require some study. Since these lamps and fixtures are expensive (\$6.75 for the 30-watt *General Electric* germicidal lamp; up to \$40 for a fixture including the lamp; \$29.50 for the *Westinghouse WB-44 Room Conditioner* complete with *Sterilamp*), it will pay consumers to devote a little time to study a few facts before planning upon any extensive installation.

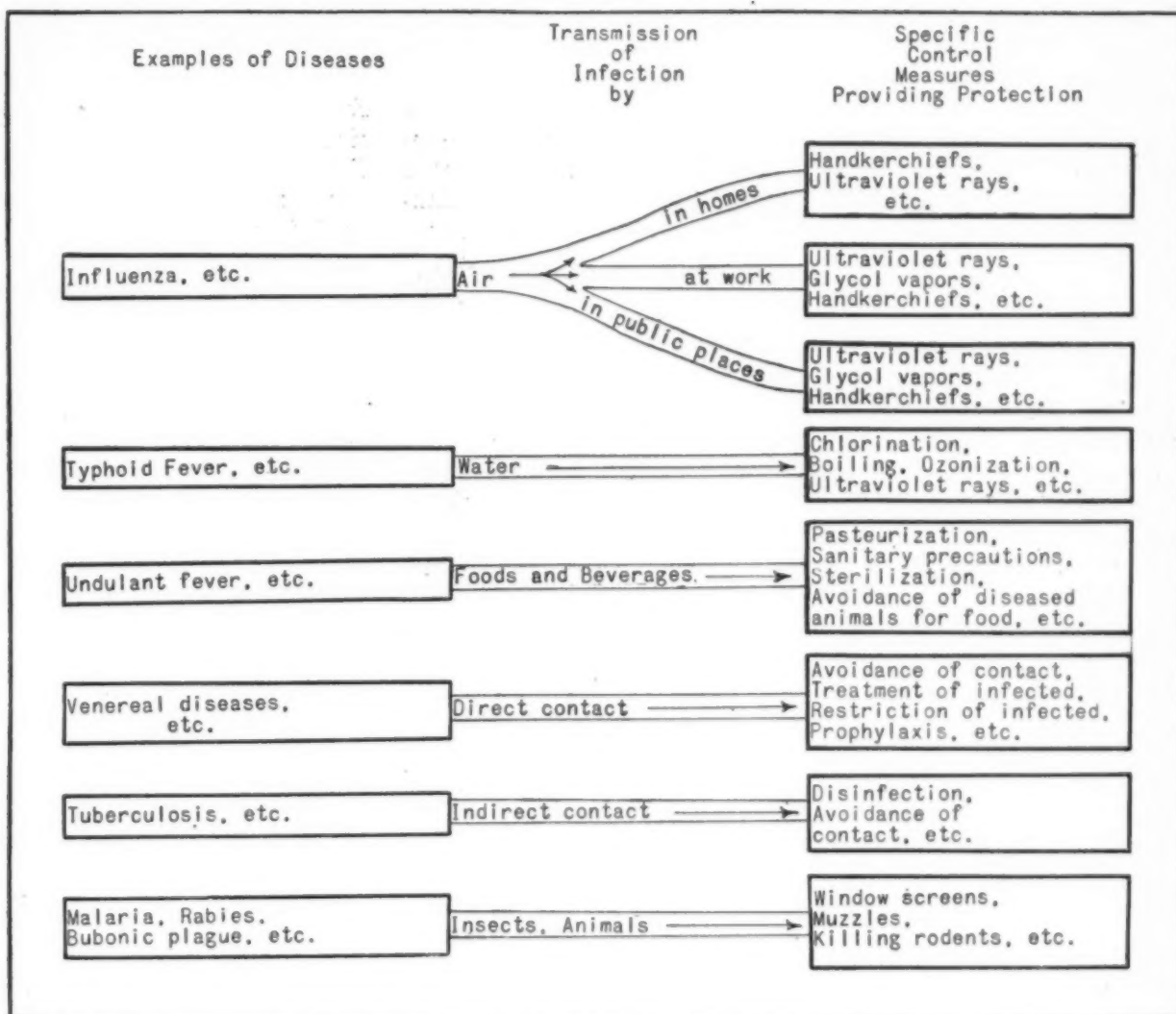
It is quite obvious that the need for disinfection of air will vary greatly. It would seem absurd to install a germicidal lamp in the tent of a person living alone in Arizona; on the other hand it might be a very intelligent move to put such lamps into an overcrowded contagious-disease hospital. Between these extremes lie the disinfection of air in homes, theaters, schools, etc. If there are no sources of infection present or no harmful microorganisms in the air (there are many more harmless and helpful bacteria than harmful) there is obviously no need for air disinfection. There is also no need for disinfection of sunny outdoor air. It has been stated that human breath is as pure as the surrounding air (in so far as bacteria present are concerned); however, the breath from a person sneezing, coughing, or even talking is not so pure as the surrounding air, and *may* be highly infectious. If all the members of a family are in good health and there are no unusual outside sources of air-borne infection that come into the house, there is probably no need for disinfection of

air in the home. Bacteria in air die after a time even without ultraviolet irradiation or other treatment. Living Pfeiffer bacillus could not be recovered from air after about one hour; disease-producing bacteria of the intestinal tract after eight hours. Type 1 *Bacillus diphtheriae*, *Streptococcus hemolyticus*, and *S. viridans* were recovered from air after two days. Bacteriophage against Hess dysentery bacillus was recovered after 24 hours; one kind of influenza virus lasted about an hour.

In public places, such as theaters, restaurants, and schools, the situation with respect to air disinfection is often different from that in the home. Not all persons in such places are healthy, and it is practically out of the question to isolate the healthy individuals from the others who are potential sources of infection.

A perspective of the whole problem of disease control by control of infective agents is important and can be gained from the diagram on page 21. The large number of ways of transmitting infection, as indicated in the figure, make the problem of control of all diseases very complicated and difficult. It is apparent that if much expense and energy is spent in controlling only one of the ways, and no control attempted on any of the rest, the effect on the prevalence of all diseases is almost certain to be disappointing. Actually, most of us enjoy the benefits of some measure of control on all of these ways. The strictness of control varies from generally excellent on water and food to very poor on air. Consideration of air-borne infection only, on the diagram, shows that control of air in the home





probably will not have much effect on the amount of air-borne disease experienced by a family if the air breathed in public places and places of work is not also disinfected. The biggest return on the investment in air-sterilizing equipment, in so far as reduction of air-borne disease is concerned, can certainly be realized from that installed in public places and places of work. Yet the benefits of disinfection of air in these places will be little noticed if disease is carried by drinking fountains which recirculate part of the water that has touched the lips of those

who drink from it, and if other unsanitary conditions prevail.

The percentage of all disease carried by air is unknown, as is the number of diseases which can be controlled by proper treatment of the air; also unknown is the effect on the overall health of a population produced by disinfecting part of the air for part of the people. This makes it impossible to predict with any accuracy the benefits of air disinfection. Experimental work has shown that disinfection of the air in the classrooms of the lower grades and in the general assembly rooms of public schools con-

siderably reduced the number of cases of measles resulting from infection at school, yet had no significant effect on the number of colds. The article describing the work of W. F. Wells, M. W. Wells, and T. S. Wilder which resulted in this disclosure should be read *in the original* by anyone charged with the responsibility of advising on a costly air-disinfection installation; this article, "Radiant Disinfection of Air in Schools," is in *American Journal of Hygiene*, volume 35, pages 97-121 (1942). Another important article, "Air-borne Infection," is printed in two issues

of the *Journal of the American Medical Association*, volume 107, pages 1698-1703 and 1805-1809 (Nov. 21, 28, 1936), and is available in larger libraries everywhere. The first two investigators, W. F. and M. W. Wells, also report disappointing results in the sterilization of air with ultraviolet radiation in the clinic of a children's hospital. These poor results were thought due to clumping of the bacteria, which shielded some from the rays. This brings up an important point in the use of ultraviolet lamps in killing microorganisms; the rays of the lamp *must come into direct contact with organisms to be killed*. Thin layers of grease, skin, dust particles, other bacteria, etc., act as shields which greatly increase the exposure required to kill. The best results are to be had only in fairly clean air. Wherever there is an appreciable amount of dust, many bacteria are protected from the radiation in one way or another, millions being shielded, of course, by being in the shadows of floating dust particles.

Other investigators have reported good results from use of ultraviolet disinfection in hospitals, especially in the operating rooms. The original papers<sup>1</sup> should be consulted for details of lamp arrangement and for statistical results.

Among the sources of germ-killing ultraviolet radiation are the *Hanovia* quartz-enclosed mercury arcs, the *Westinghouse Sterilamps*, and the *General Electric* germicidal lamps. Since quartz permits the passage of the shorter ultraviolet rays, which generate ozone, only those lamps equipped with glass

cutting off these shorter rays should be considered for general application; ozone (though produced by various appliances sold as health-promoting devices for home or office use) is a dangerously toxic gas (so dangerous indeed that the concentration of ozone in air that is breathed should not be permitted to exceed one part in ten million). Because of the electrical characteristics of mercury arcs, it is necessary to use a current-regulating ballast. The *Sterilamp* requires a special transformer and sockets. The *General Electric* germicidal lamps require sockets and ballasts suitable for corresponding sizes of ordinary fluorescent lamps; in fact these germicidal lamps are identical with fluorescent lamps in operating characteristics. The difference is in the kind of glass used for the tube and in the fact that the germicidal lamp has no fluorescent coating inside the tube. The effective life of the larger sizes of *Sterilamp* is stated to be 6 months. The life of the larger germicidal lamps (15- and 30-watt) is given as 2500 hours for ordinary discontinuous operation and 4000 hours for continuous operation. The list prices of the 15- and 30-watt germicidal lamps are \$4.50 and \$6.75; the ballasts sell for about 85c and \$2.40, respectively. The list prices of the *Sterilamps* are \$8 for the WL-782-10 and \$10 for the WL-782-30; the transformers list at \$5.55. Special fixtures containing these lamps, sockets, and auxiliaries ready to be plugged into an electric power outlet are also available.

There are three general ways of installing germicidal lamps. The most effective, by far, is an arrangement that gives direct irradiation of all the air in

the room by unshielded lamps, but this way is largely limited in its use to *unoccupied* rooms because of the damaging action of the rays on the eyes and skin. *The warnings which come with these lamps should be strictly heeded*, and very particular pains must be taken that no child may be at any time in a position to be exposed to the radiation from the lamp—severe pain and partial or temporary blindness might be one result of any such unintended exposure to strong ultraviolet radiation. For example, a severe reddening of the eyeball and burning of the lining of the eyelids (called "conjunctivitis") will be produced by exposure about a foot away from the lamps for only a few seconds. The feeling of pain ("grit in the eyes"; "eyelids scraping the eyeballs") starts some three to five hours after exposure. (When not too severe, it can be relieved somewhat by "cold compresses.")

Another type of installation irradiates only the air in the top of the room above eye level. This type depends for its effectiveness on the quantity of air in the irradiated part (the higher the ceilings the better) and on the circulation of the air between the top and bottom parts of the room. If there is little or no circulation, the effectiveness is very low and fans or other means of circulating the air must be provided to make the installation useful. The actual velocities of air in a room may vary from zero to 10 feet or more per minute; "an effective sanitary ventilation rate" corresponding to ten to twenty times the standard winter ventilation effect has been attained by indirect irradiation in *typical school rooms*; direct irradiation, as of hospital operating rooms,

<sup>1</sup> D. Hart, "Pathogenic Bacteria in Air of Operating Rooms," *Arch. of Surg.* 37, 521. "Sterilization of Air in Operating Rooms," *Arch. of Surg.* 37, 956. E. C. Robertson, M. E. Doyle, and F. F. Tisdall, "Air Contamination and Air Sterilization," *Amer. J. Diseases of Children*, 58, 1023.

where the eyes and skin of the doctors can be adequately protected by goggles and clothing, is more than ten times as effective as the indirect method.

A scientist eminent in the field of ultraviolet measurements, has pointed out that there are many possibilities for poor installation of equipment for ultraviolet irradiation, causing ineffective performance of ultraviolet lamps used for disinfection, and some possibility for harm to occupants of the room affected. In one institution, for example, the skin of nurses and infants was affected by photo-chemical action of ultraviolet radiation reflected from walls and ceiling. This was corrected when these surfaces were later painted with a decorative light-blue paint absorptive of ultraviolet. (The emission of the lamps is highly effective in producing erythema of the skin, but inefficient in producing the tan which provides protection against skin burns.) The expert referred to has set the value of 0.1 microwatt per square centimeter as the maximum ultraviolet emission for 24-hour occupancy, with 0.5 microwatt per square centimeter for 7-hour occupancy, corresponding to schoolroom conditions.

In another installation, owing to incorrect positioning of one wall fixture, ultraviolet rays shone directly into the eyes of the teacher, causing severe conjunctivitis. In a third installation, another type of fixture caused erythema upon the head of a baldheaded teacher, through reflection of rays from a shiny ceiling. Damage may also be done by fading or discoloration of wall paint and paper, drapes, etc.

As to disinfection of liquids,

the American Medical Association's Council on Physical Therapy warns that effectiveness of the ultraviolet germicidal lamp is good only with liquids which are highly transparent to ultraviolet radiation and free from suspended material.

The Council does not give its formal acceptance to ultraviolet lamps for disinfecting air in schools, waiting rooms, industrial plants, barracks, assembly halls, or refrigerators; it notes that the evidence now available "does not indicate that the incidence of colds can be reduced by the installation of ultraviolet lamps or by the irradiation of an enclosure occupied by people." The Council does accept ultraviolet lamps "for disinfecting air in hospitals, nurseries and operating rooms (relatively free from dust) as practiced by present day empirical methods."

The third way of installing germicidal lamps for disinfection of the air places the lamps in the cold-air side of a hot-air furnace or other air conditioner and disinfects the air circulated. While this method eliminates the possible damaging action of the rays on the eyes, skin, colored draperies (ultraviolet radiation fades many dyes rapidly), paint, rubber, etc. (the rays greatly hasten deterioration, it has the serious disadvantage of being limited in its effectiveness by the rate of circulation of the air in the conditioning system. Six changes of air per hour have been rated as too few; twenty are reported satisfactory. One authority considers that the placing of ultraviolet lamps in ducts used for air conditioning is not effective. The action in that type of installation is somewhat analogous to that which takes

place when a trickle of clean water is allowed to pour into a large vat of dirty water; the dirty water is never cleaned up by this process. When the sterilizing lights are placed in the room, properly shielded so as not to affect the eyes and skin of any persons in a room, the air will ordinarily pass within the range of the lamps frequently enough to provide effective sterilization.

Absence of ozone from the air treated in an air-conditioning system is important not only to human health, but also to prevent quick deterioration of the rubber parts of the system, e.g., belt for the blower, electrical insulation, etc. Ozone attacks rubber rapidly. There is also the possibility of undesirable reaction of ozone with the adhesive on the air filters with the possible production of obnoxious or even dangerous products. (The production of ozone by these ultraviolet lamps is not related to their effectiveness in killing bacteria, since the concentration of ozone that would give a comparable degree of bactericidal action is probably 1000 times that which should be tolerated in air to be breathed by human beings.) The Council on Physical Therapy of the American Medical Association requires that in the space near the occupants of the room, the concentration of ozone shall not exceed one part in 10 million, but may later call for an even much lower limit on the ozone content of the air. "If the odor of ozone is distinctly perceptible the Council recommends increased ventilation."

The effectiveness of the germicidal lamps is markedly affected by the humidity of the air; the killing power of ultra-



violet rays for *Bacillus coli* at low humidities is about ten times that at high humidities. One authority considers ultraviolet light practically impotent against microorganisms in air when the relative humidity is more than 60 percent. The killing power also varies somewhat for different kinds of bacteria; molds and yeasts are much more resistant than are bacteria. Insects are reported unaffected. One should make very sure that the microorganism to be controlled *can* be killed by ultraviolet radiation under conditions actually found in practice, before recommending an expensive installation. The disinfection by ultraviolet radiation of the surface of solid articles and materials, for example, eating and drinking utensils, has been found in practice to be very erratic, so that it cannot be recommended. Consumers should place no confidence in the non-infectiousness of toilet seats, towels, beer mugs, silverware, dishes, and other solid objects said to be sterilized by ultraviolet rays, as has been claimed in advertising promotion of certain hotels, restaurants, and other enterprises.

The light-reflective quality of the fixture or air duct in which the lamp is installed is also an important factor in the effectiveness of these lamps. Chromium-plated metal reflects about 50%, a "smoked" magnesium oxide layer about 93% of the germ-killing rays. Grease films, soot, dust, etc., on the reflectors and lamps may greatly reduce the effectiveness. Thus, a regular cleaning program should be instituted. The lamps can be cleaned with fat-free filter paper or absorbent cotton moistened with pure ethyl alcohol (if this is not available, chemically pure acetone should be a good substitute); *uncoated* metal reflectors can be cleaned in the same way and air ducts can be repainted with No. 2025 *Permite* aluminum paint (Aluminum Industries, Incorporated, Cincinnati, Ohio). The lamps should not be cleaned with soap because of the possibility of leaving on them a film of calcium soap, and they should not be touched with the fingers. During cleaning, the lamps should of course be off at all times, to protect the eyes and skin. The aging of these lamps with use reduces their germicidal effectiveness,

so that one and one-half to two times the number of lamps originally calculated must later be used if a certain minimum of germ-killing power is to be maintained.

Finally, it must be emphasized that the whole subject of air disinfection is surrounded by a considerable haze of uncertainty. As scientific research dispels the haze, it will become more evident just how much can reasonably be expected of this new form of sanitation in the control of disease. At present, the use of germ-killing lamps in certain pharmaceutical-manufacturing plants, hospital operating rooms, and possibly in other hospital rooms seems well worth considering, but as already noted, proper sterilization of the air by ultraviolet radiation requires that there be sufficient movement and circulation of the air. The lights must be so placed that all of the air in the room will be circulated to come within the effective range of the unit. The advocacy of their use in schools, theaters, stores, homes, and most work places still belongs, in general, only in the field of the sales-promotion manager.

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## Off the Editor's Chest

[Continued from page 2]

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would but go back to something of the saving and frugal scale of operations which its policies have forced upon its taxpayers. The government, it should be noted, is just as disinclined as any business firm to relinquish a profitable source of revenue. Many will remember when New York City imposed a sales tax for the sole purpose of taking care of the unemployed in a crucial period. Unemployment is very low at the

present time, and the sales tax has not only come to be considered an accepted source of the city's revenues for general expenses, but not long ago was actually increased. It should be noted that the President's proclamation of the "end of hostilities" provides only for a *reduction*—to begin six months after December 31, 1946—of taxes on a comparatively small number of items. Many of the special taxes still

remain in effect.

Just what constitutes a "luxury" by government definition is also a bit of a sore point. As one justly angry consumer-taxpayer pointed out, why should a camera used by a professional photographer to earn a living, or a woman's handbag of the most inexpensive variety, be subject to a 20 percent tax when there is no luxury tax on \$10 worth of caviar or a \$125 corset.

Widespread consumer refusal to buy at present high prices, coupled with organized labor's demands for ever-increasing wages and shorter hours and other benefits making for reduced productivity will, in the opinion of a number of economists, be cause for a business depression in this country. The situation is well summed up by the business economist, E. B. Gallaher, of Norwalk, Conn., in a study made for the Army Ordnance Association:

We have today enormous high-cost inventories; our overheads are inflated; labor costs are completely out of line; labor efficiency has fallen; prices are very high due to these conditions; we have a few million workers who have ample money to spend; we have a hundred million people who are not "in the money" and are rapidly being priced out of the market; another round of strikes is contemplated.

All this spells a severe reaction to bring our economy into balance, and this should come within the next six to ten months.

Just how severe the depression will be, if it comes, is a matter for disagreement. It appears, however, that the resulting unemployment will have some effect in halting the present trend of granting whatever wage rise some particular union's economist considers

will be more impressive than that asked for by some other union leader, with the resulting increase in production cost unquestionably to be passed on to the unprotected consumer.

Public opinion has undoubtedly condoned this practice in the past on the theory that people who work for a living are all to be looked upon as "underdogs" and that no matter what they are paid, it is too little. There is a limit, however, to the increase in costs of production that can be absorbed by increases in plant economies and improved efficiency of management and operation. Consumers will have to make a choice between supporting a system of production based on high wages and high prices, or a system providing an abundance of products at moderate prices and somewhat lower wages for the particular sections of organized labor involved. As Henry Hazlitt points out in his excellent little book, "Economics in One Lesson" (Harper & Bros.):

Every increase in hourly wages, unless or until compensated by an equal increase in hourly productivity, is an increase in costs of production. An increase in costs of production, where the government controls prices and forbids any price increase, takes the profit from marginal producers, forces them out of business,

means a shrinkage in production and a growth of unemployment. Even where a price increase is possible, the higher price discourages buyers, shrinks the market, and also leads to unemployment. . . . The best prices are not the highest prices, but the prices that encourage the largest volume of production and the largest volume of sales. The best wage rates for labor are not the highest wage rates, but the wage rates that permit full production, full employment and the largest sustained payrolls. The best profits, from the standpoint not only of industry but of labor, are not the lowest profits, but the profits that encourage most people to become employers or to provide more employment than before.

Consumers who want prices of the things they buy to come down will need to use their influence to bring public opinion to an understanding that a readjustment is necessary in the present economic situation, so that it no longer favors the interests of one particular minority at the expense of the rest of the country. Consumers are people, too, and are indeed the most numerous class of all the people who make up our country, and surely consumers are not less deserving of consideration and fair-dealing than any other group in the population.

## *Commodities Scarce, but Legislation in Oversupply*

Charles L. Parsons, distinguished American chemist and consultant to government agencies, who was for many years Secretary of the American Chemical Society, writing in Chemical and Engineering News, publication of the Society, against the enactment of legislation requiring the licensing of chemists, said: "Licens-

ing legislation is essentially repressive. It seems to be based on the dangerous theory that the individual has no inherent right to do anything unless and until he gets expressed permission from the Government . . . . The country is short of a great many commodities, but I am convinced that we are

suffering from a tremendous oversupply of legislation. Although each bill proposes to protect society, its net result is chiefly a decrease in those rights and liberties which this country has long enjoyed. . . . I cannot conceive of any free born American submitting voluntarily to more regimentation by the state."

# High-Fidelity, High-Priced Radio-Phonographs

**H**IGH-FIDELITY radio-phonographs are being offered at prices which are more than a little shocking to people who purchased, or priced, radio receivers of similar character and claims before the war. The figures at which radio-phonographs of highest grade are being offered at the present time run from about \$975 to about \$1500, and the question naturally arises whether Consumers' Research should test such equipment, or should, on the other hand, assume that the number of people interested is too few to warrant the expenditure of the considerable amount of money that must be spent in procuring and testing them.

On the other hand, since listening to very well reproduced music, though a luxury, may be to many people no more of a luxury than owning an automobile, it occurred to us that before deciding on this question we had better seek an expression of views from subscribers on the matter. There has, indeed, been a surprisingly large number of inquiries from people who want to know about some of the high-priced sets—such for instance as the *Fisher*, the *Scott*, the *Capehart*. The cost of testing such sets is not prohibitively large, but the cost of *owning* one if it turns out to be of poor quality and performance is naturally a heavy one, for few will be interested

in paying a reasonable proportion of the purchase price for even a slightly used set listed, say, at \$1000, which has won any rating below *A*.

We shall welcome suggestions from our readers on this question, and we shall test a few of the high-priced sets if there is sufficient interest to warrant our doing so. (In this connection it should be remembered that in the pre-war period top-grade sets were offered at about \$180 for a radio alone, and up to about \$270 to \$450 for a radio-phonograph combination, including FM.)

It must be noted that unless there is a sharp decline in the price of the top-level radio receivers and radio-phonographs, along with other luxury goods (which are pretty certain to fall off sharply in market value in the near future), anyone who wants to have good reproduction of radio music and of records must be prepared to pay the price which the makers of high-fidelity sets ask. Good reproduction is impossible, as CR has often pointed out, in some detail, from low-priced sets—particularly table models and small consoles. (The performance of lower-priced sets is particularly bad now, even in console models, because in an effort to bring manufacturing costs down in a period of extraordinarily high labor and material costs, the makers of console receivers have

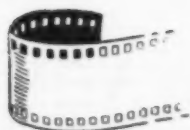
been cutting costs by using very small chassis. These chassis, indeed, are often hardly larger than those which constitute the tuner and amplifier units of small and moderate size table-model receivers.) A first-class radio or radio-phonograph must, therefore, be big and heavy, and that means not just the cabinet, but the mechanical and electrical parts, for there is no way known by which manufacturers can get good reproduction out of lightweight components. Speakers and transformers particularly must be heavy units, to be good, and large bulk usually goes with this. Transformers alone in a high-grade set will weigh as much and bulk as large as many a complete receiver.

## Abridged Cumulative Index of Previous 1947 Issues Consumers' Research Bulletins

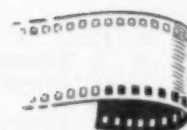
	Month and Page
Batteries, storage, care.....	Jan., 4
Battery chargers, automobile†.....	Jan., 12-15
Beef, frozen, flavor deterioration in long storage.....	Jan., 3
Blankets, warmth.....	Jan., 4
CR Bulletins and correspondence, delays necessary at times.....	Jan., 17
Cameras, foreign, production.....	Jan., 29-30
Candy and cookies, condemned government surplus.....	Jan., 3-4
Car sales, used.....	Jan., 4
Children, poor food habits.....	Jan., 4
Cleaner, floor (Bruce)†.....	Jan., 30
Corrections and emendations†.....	Jan., 22
Cream, whipped, substitute (Whip Topping)†.....	Jan., 4
Editorial.....	each issue, page 2
Fire extinguishers—II†.....	Jan., 18-21
Fluorescent lighting, effect often not flattering.....	Jan., 3
Furs, luxury, drop in price.....	Jan., 4
Motion pictures†.....	each issue
Motor oils, winter†.....	Jan., 24-25
Oil burners, increased use.....	Jan., 3
Paint, exterior house, scarcity.....	Jan., 4, 29
Phonograph pickups†.....	Jan., 23
Phonograph records†.....	each issue
Radio receiver for the deafened†.....	Jan., 26
Radio-phonograph combination†.....	Jan., 25
Room-heaters, electric.....	Jan., 5-8
Soaps, laundry†.....	Jan., 15-17
Socks, men's†.....	Jan., 9-11

†Indicates that listings of names or brands are included.





# Ratings of Motion Pictures



**T**HIS section aims to give critical consumers a digest of opinion from a wide range of motion picture reviews, including the motion picture trade press, leading newspapers and magazines—some 19 different periodicals in all. The motion picture ratings which follow thus do not represent the judgment of a single person, but are based on an analysis of critics' reviews.

The sources of the reviews are:

Box Office, *Charm*, *Chicago Daily Tribune*, *The Christian Century*, *Cue*, *Daily News* (N.Y.), *The Exhibitor*, *Harrison's Reports*, *Motion Picture Herald*, *National Legion of Decency List*, *Newsweek*, *New York Herald Tribune*, *New York Times*, *Parents' Magazine*, *Release of the D.A.R.*, *Preview Committee*, *Successful Farming*, *Time*, *Variety* (weekly), and *Unbiased Opinions of Current Motion Pictures* which includes reviews by the General Federation of Women's Clubs, the American Legion Auxiliary, National Film Music Council, and others.

The figures preceding the title of the picture indicate the number of critics who have been judged to rate the film A (recommended), B (intermediate), and C (not recommended).

Audience suitability is indicated by "A" for adults, "Y" for young people (14-18), and "C" for children, at the end of each line.

Descriptive abbreviations are as follows:

adv—adventure  
biog—biography  
c—in color (Technicolor, Cinecolor, or Magnacolor)  
car—cartoon  
com—comedy  
cri—crime and capture of criminals  
doc—documentary  
dr—drama  
fan—fantasy

hist—founded on historical incident  
mel—melodrama  
mus—musical  
mys—mystery  
nov—dramatization of a novel  
rom—romance  
soc—social-problem drama  
trav—travelogue  
war—dealing with the lives of people in wartime  
wes—western

A	B	C		
2	2	7	Able's Irish Rose	com AYC
—	—	5	Accomplice	cri-mel A
—	—	7	Affairs of Geraldine	mus-com A
1	8	8	Angel on My Shoulder	fan A
—	1	3	Appassionata	mus-dr A
—	8	8	Bachelor's Daughters, The	mus-com A
—	4	5	Bamboo Blonde, The	mus-war-rom A
—	2	6	Beast with Five Fingers, The	cri-mel A
—	1	2	Beauty and the Bandit	wes AYC
—	4	4	Below the Deadline	mel A
9	2	1	Best Years of Our Lives, The	war-dr A
—	1	5	Betty Co-ed	mus-com A
—	2	2	Beware	mus-com A
1	8	8	Big Sleep, The	cri-mel A
—	8	7	Black Angel	mus-mel A
—	7	5	Black Beauty	dr YC
—	1	5	Blonde for a Day	mys A
—	4	5	Blondie Knows Best	com AYC
—	1	3	Blondie's Big Moment	com A
—	2	1	Blue Sierra	dr-c AYC
1	13	2	Blue Skies	mus-biog-c A
—	—	5	Boston Blackie and the Law	cri-mel AY
—	3	3	Bowery Bombshell	mel AYC
—	1	2	Bridge of Sighs	mel A
4	13	—	Brief Encounter	dr A
—	3	3	Bringing Up Father	com AY
—	1	4	Brute Man, The	cri-mel A
4	11	3	Caesar and Cleopatra	dr-c A
1	5	—	California	wes-c A
2	10	3	Canyon Passage	wes-c A
1	6	1	Carmen	dr A
—	5	7	Chase, The	cri-mel A
—	4	4	Child of Divorce	dr A
1	1	1	Children of Paradise	dr A

A	B	C		
2	9	4	Claudia and David	com AYC
1	13	3	Cloak and Dagger	war-mel A
—	9	6	Cockeyed Miracle, The	fan A
—	3	3	Colorado Serenade	mus-wes-c AYC
—	3	—	Conquest of Cheyenne	wes AYC
—	2	2	Cowboy Blues	mus-wes AYC
—	9	5	Crack-Up	cri-mel A
—	2	7	Crime Doctor's Manhunt	mys-mel A
—	1	2	Crime of the Century	cri-mel A
—	6	4	Criminal Court	mus-cri-dr A
—	4	9	Cross My Heart	mus-cri-mel A
—	2	7	Cuban Pete	mus-com AYC
—	4	5	Danger Woman	mel A
—	2	5	Dangerous Business	cri-mel AYC
—	2	3	Dangerous Millions	cri-mel AYC
—	1	4	Dangerous Money	mys-mel AYC
—	3	6	Dark Alibi	mys-mel AYC
—	5	5	Dark Horse, The	com AYC
2	10	3	Dark Mirror, The	mys-mel A
—	11	4	Dead of Night	mys-mel A
—	1	8	Deadline for Murder	cri-mel A
—	2	2	Death Valley	mel-c AYC
—	9	7	Deception	dr A
—	3	5	Decoy	mel A
—	5	2	Desert Horseman, The	mus-wes AYC
—	3	1	Devil's Hand, The	fan A
—	5	1	Devil's Playground, The	wes AYC
—	4	3	Dick Tracy versus Cueball	mel A
—	—	3	Don Ricardo Returns	rom-dr A
—	4	5	Down Missouri Way	mus-com AYC
—	3	1	Driftin' River	mus-wes AYC
—	8	3	Earl Carroll Sketchbook	mus-com A
1	11	4	Easy to Wed	mus-com-c A
—	3	—	Extenuating Circumstances	cri-com A
—	4	1	Fabulous Suzanne, The	com A
—	6	3	Faithful in My Fashion	rom A
—	2	6	Falcon's Adventure, The	cri-mel AYC
—	3	1	Fool's Gold	wes AYC
—	1	2	Frenzy	mys-mel A
—	7	2	G.I. War Brides	dr A
1	6	5	Gallant Bess	war-dr-c AYC
—	4	12	Gallant Journey	dr A
—	2	3	Gas House Kids	mel AYC
—	2	1	Genius and the Nightingale, The	dr A
—	7	—	Genius at Work	mys-com A
—	6	1	Gentleman Joe Palooka	com A
—	1	4	Ghost of Hidden Valley	wes AYC
—	2	2	God's Country	mel-c AYC
—	4	4	Great Day	war-dr AYC
—	2	1	Gunman's Code	wes AYC
—	1	4	Heading West	wes AYC
—	2	3	Hello Moscow	mus-com A
—	7	2	Her Adventurous Night	com A
—	6	3	Her Sister's Secret	war-dr A
—	2	5	High School Hero	mus-com AY
4	10	3	Holiday in Mexico	mus-com-c AYC
—	7	—	Home in Oklahoma	mus-wes AYC
—	7	5	Home Sweet Homicide	mys-mel A
1	5	6	Humoresque	mus-dr A
—	3	1	I Know Where I'm Going	dr A
—	4	8	If I'm Lucky	mus-com A
—	—	6	Inner Circle, The	cri-mel A
—	5	6	Inside Job	cri-mel A
—	—	5	Invisible Informer	cri-mel A
6	5	1	It's a Wonderful Life	dr AY
—	2	7	It's Great to be Young	mus-com AY
2	5	6	I've Always Loved You	mus-dr-c A
2	3	—	Jerico	war-dr A

A	B	C				A	B	C			
1	6	3	Johnny Frenchman	war-dr	A	—	—	3	Shadows on the Range	wes	AYC
4	7	1	Jolson Story, The	mus-biog-c	AY	—	1	4	Shadows over Chinatown	mys-mel	AYC
2	13	1	Killers, The	cri-mel	A	—	8	—	Show-Off, The	com	AYC
—	1	2	Lady Chaser	mel	AY	—	1	2	Silver Range	wes	AYC
1	3	—	Lady in the Lake	cri-mel	A	—	7	—	Sing While You Dance	mus-com	AYC
—	11	5	Lady Luck	com	A	—	—	4	Singin' in the Corn	mus-com	AYC
—	4	—	Lady Surrenders, A	rom	A	—	2	2	Singing on the Trail	mus-wes	AYC
—	2	3	Landrush	mus-wes	AYC	1	4	—	Sioux City Sue	mus-wes	AYC
—	2	6	Last Crooked Mile, The	cri-mel	A	—	4	3	Sirocco	dr	A
—	2	2	Lawless Breed	mus-wes	AYC	4	7	3	Sister Kenny	biog	AYC
—	2	5	Little Iodine	com	A	—	2	6	Slightly Scandalous	mus-com	AY
—	4	3	Little Miss Big	dr	AYC	3	12	1	Smoky	mus-dr-c	AYC
1	4	5	Little Mr. Jim	mus-com	AY	—	5	5	So Dark the Night	mel	A
—	4	1	Locket, The	mel	A	—	1	3	Song of Mexico	mus-dr	A
—	6	1	Love Laughs at Andy Hardy	mus-com	AY	—	10	2	Song of the South	car-c	AYC
—	5	8	Lover Come Back	com	A	—	1	3	South of Monterey	mus-wes	AYC
1	9	5	Magnificent Doll, The	hist-dr	A	—	1	5	Spook Busters	com	AY
—	1	2	Magnificent Rogue, The	com	A	2	5	—	Stairway to Heaven	fan-c	A
—	—	5	Man from Morocco, The	mel	A	—	1	2	Stars Over Texas	mus-wes	AYC
1	4	—	Man from Rainbow Valley	mus-wes-c	AYC	—	3	6	Step by Step	war-mel	A
—	3	3	Man I Love, The	mus-mel	A	—	11	5	Stolen Life, A	dr	A
3	11	2	Margie	com-c	AY	—	1	2	Stone Flower	fan-c	AYC
—	7	1	Mighty McGurk, The	dr	AYC	—	10	3	Stormy Waters	dr	A
—	—	3	Missing Lady, The	mys-mel	A	—	4	—	Story of the Pope, The	doc	AYC
—	5	12	Mr. Ace	dr	A	—	—	5	Strange Holiday	mel	A
—	4	1	Mr. Hex	mel	AYC	—	6	—	Strange Journey	mel	A
—	3	—	Murder in Reverse	cri-mel	A	1	4	3	Strange Woman, The	dr	A
—	4	2	My Brother Talks to Horses	com	AYC	—	7	—	Sun Valley Cyclone	wes	AYC
2	13	1	My Darling Clementine	wes	AYC	—	4	6	Sunset Pass	wes	AYC
2	4	1	My Pal Trigger	mus-wes	AYC	—	2	3	Susie Steps Out	mus-com	A
—	13	—	Navajo Trail, The	wes	AYC	—	3	2	Sweetheart of Sigma Chi	mus-com	A
—	6	5	Never Say Goodbye	com	A	—	2	4	Swell Guy	dr	A
2	13	2	Night and Day	mus-biog-c	A	—	2	3	Taras Family, The	war-dr	A
—	1	4	Night Train to Memphis	mus-mel	A	—	3	10	Temptation	cri-mel	A
—	8	7	No Leave, No Love	mus-com	AY	—	3	7	That Brennan Girl	mel	A
—	5	8	Nobody Lives Forever	cri-mel	A	—	2	2	That Texas Jamboree	mus-mel	AYC
1	4	11	Nocturne	mus-mel	AY	—	10	9	They Were Sisters	dr	A
9	10	—	Notorious	mys-mel	A	—	—	—	Thieves' Holiday (See Scandal in Paris, A)	—	—
2	10	4	Notorious Gentleman	war-dr	A	—	4	1	13 Rue Madeleine	war-mel	AYC
—	5	9	Of Human Bondage	dr	A	—	14	1	Three Little Girls in Blue	mus-com-c	AY
—	3	4	One Exciting Week	mus-com	A	1	7	5	Three Wise Fools	com	AYC
—	2	2	Out California Way	mus-wes-c	AYC	—	8	7	Thrill of Brazil, The	mus-com	A
—	—	3	Outlaw of the Plains	wes	AYC	3	7	2	Till the Clouds Roll By	mus-biog-c	AY
—	1	3	Overland Riders	wes	AYC	2	8	6	Till the End of Time	dr	A
1	5	—	Overlanders, The	dr	AYC	—	5	6	Time, the Place, and the Girl, The	mvs-com-c	A
—	3	2	Paris Frills	dr	A	1	8	1	Time of Their Lives, The	com	AYC
—	3	5	Passkey to Danger	cri-mel	A	—	1	6	Traffic in Crime	mel	A
—	4	4	Perfect Marriage, The	com	A	—	4	—	Tumbleweed Trail	mus-wes	AYC
—	3	5	Personality Kid	com	AYC	—	4	2	Turning Point, The	war-dr	A
—	—	5	Phantom Thief, The	cri-mel	A	—	9	3	Two Guys from Milwaukee	com	AYC
—	7	3	Plainsman and the Lady, The	wes	AY	—	4	5	Two Smart People	cri-mel	A
—	3	4	Postmaster's Daughter, The	nov	A	1	10	4	Two Years Before the Mast	adv	AYC
—	—	5	Prairie Badmen	mus-wes	AYC	—	3	2	Two-Fisted Stranger	wes	AYC
—	1	2	Prairie Rustlers	wes	AYC	—	4	1	Under Nevada Skies	mus-wes	AYC
—	4	5	Queen of Burlesque	mus-mel	A	—	3	4	Undercover Woman, The	cri-mel	A
2	4	—	Raider, The	war-doc	AY	2	6	5	Undercurrent	mel	A
1	8	4	Razor's Edge, The	dr	A	—	2	7	Unexpected Guest	wes	AYC
—	9	2	Rendezvous with Annie	war-com	A	—	2	7	Unknown, The	mvs	A
—	2	4	Resistance	war-mel	A	—	3	6	Vacation in Reno	com	A
—	2	2	Return of Monte Cristo	mel	A	—	1	10	Valley of the Zombies	cri-mel	A
—	4	3	Return of Rusty	mel	AYC	—	9	3	Verdict, The	cri-mel	A
—	6	1	Roll On Texas Moon	mus-wes	AYC	—	—	5	Wake Up and Dream	mus-fan-c	AYC
—	2	1	Rolling Home	dr	AYC	—	5	6	Wanted for Murder	cri-mel	A
—	4	1	Rustler's Roundup	wes	AYC	3	5	1	Welldigger's Daughter, The	dr	A
—	2	4	San Quentin	mel	A	—	5	—	West of the Alamo	mus-wes	AYC
—	5	11	Scandal in Paris, A	cri-mel	A	—	6	6	White Tie and Tails	com	A
—	7	4	Secret Heart, The	mus-mel	AY	—	3	—	Wicked Lady, The	dr	A
—	—	6	Secret of the Whistler	mvs	A	—	7	—	Wife Wanted	cri-mel	A
—	1	4	Secrets of a Sorority Girl	cri-dr	A	—	3	7	Wild Beauty	dr	AYC
—	5	4	Shadow of a Woman	cri-mys	A	2	1	—	Wild West	mus-wes-c	AYC
—	2	5	Shadowed	mvs-mel	A	5	2	—	Yearling, The	dr-c	AYC
						—	5	1	Years Between, The	nov	A
						—	3	—	Youth Aflame	dr	A

# The Consumers' Observation Post

(Continued from page 4)

sumer's dollar, and there are also said to be tremendous supplies in family frozen-food lockers.

\* \* \*

GOVERNMENT SURPLUS MOTION PICTURE CAMERAS are now being offered by some department stores. These cameras known as the A N (Army Navy) and also as the GSAP (Gun Sight Aim Pointer), and used for some military purposes, are electrically operated from a 6-volt radio battery, use standard Eastman Kodak 16 mm magazine film, and sell for the hefty price of \$149.50. The first models made were not too successful, and it is understood later contracts were turned over to Bell & Howell. In any event anyone intending to buy one of these cameras would do well to demand a trial period with full refund of purchase price if not satisfactory, for the camera in view of its high price, might turn out to be a very poor investment if it should be one of the unsuccessful models and makes.

\* \* \*

NEW PRODUCTS: Cap-Off Bottle Opener. This handy little gadget is made by The Eagle Lock Co., Terryville, Conn., and retails for \$2.50—which is a lot of money for any bottle opener. The device consists of a polished aluminum hood inside of which are three metal fingers pushed toward the center by small springs. These fingers snap over the bottle cap when the opener is placed in position for use. Squeezing together a pair of handles attached to the top of the hood pushes down a post within it which depresses the center of the bottle cap while its edges are gripped by the three fingers. This action draws the cap off the bottle with practically no distortion, leaving only a round depression in the center. Caps removed by this method are left in good condition and so can be reused if desired. This is an advantage, no doubt, but not an important one, it seems to us, over the cheap 10-cent store types of bottle openers which lift up one edge of the cap (and mutilate it to some degree in doing so), but nevertheless do usually get the tops off bottles quickly and effectively. The Cap-Off is good-looking and would make an attractive addition to the home bar, perhaps, but we have a feeling that most of the bottles will still be opened with the cheap, simple and very handy little gadget with which all have been familiar ever since crown-capped bottles became the universal containers for carbonated water and soft drinks.

Maid of Honor (Sears-Roebuck's Cat. No. 7852, at \$2.95, and shown in Spring 1946 catalog) is a compact household scale of 24-lb. capacity, with 2-oz. graduations, of a kind that is acceptable for many household weighing operations where accuracy is not important. Such a scale is not legal for use in

For wise counsel

in buying



consult

Consumers' Research Bulletin!

**N**OW that long-awaited appliances and other items are again becoming available, consumers have some opportunity to choose which brand or make they wish to buy. Before making your selection, consult CR's reports of tests made by unbiased, competent scientists and technical experts.

**S**UBSCRIBERS tell us that by following CR's advice they have been able to save money, ranging from a few dollars to large sums, in making their purchases. Won't you tell your friends how they too can profit by using CR's information?

Please pass along to an interested friend the order blank on next page!



trade--i.e., in buying and selling--but that fact is not made apparent to the persons buying from the catalog (though the purchaser who reads carefully is perhaps warned to some extent by the phrase "home scales," in the catalog). A catalog picture purporting to show part of the actual dial markings enlarged omitted the phrase "not legal for trade" (which did appear on actual dial of the scale). With the test load carefully centered, the largest error was about 2 oz. at 8 lb., but with an off-center loading, errors were very large in some positions--as much as 9 oz. at 8 lb. load, indeed, and 12 oz. at 15 lb. load which is an intolerably large error from this cause. (The scale was described as "accurate," in the catalog.) The inaccurate readings appear to have been the result of use of spot-welding in manufacture of an inside part which resulted in a geometric distortion of the linkwork so that it no longer provided the parallel motion which is necessary for a scale which has its platform above the beam or dial. When the large error of the scale was observed, two additional scales of the same kind were purchased, at different times. The characteristic large error from off-center placement of the load was found on both of these also, when the load was put on the region of the platform toward the user and to his right. This would indicate a serious fault of manufacture, and failure of the producer of the scale to establish proper standards for test before packing and shipping. (A moderate error with off-center loading can be tolerated, but the error reported is several times as large as would be permissible for this type of scale under any conditions of loading.) If this mistake in the method used in manufacturing the scale is corrected, the appliance could be made suitable for home (but not commercial) use where a scale of this fairly large capacity is needed. Incidentally, for most kitchen and household service, at least for a small family, a scale of rather smaller capacity would be desirable in order to obtain greater sensitiveness and accuracy at small loads of around 1 to 3 or 4 pounds, for cheap spring scales do not give a satisfactory degree of accuracy and sensitiveness unless restricted to a rather small capacity of say 8 to 10 pounds or something of about that order.

Prestorer (Technical Development Laboratories, Tenafly, N. J.; 60c for one-pint jar), a liquid paint brush "rejuvenator," was recently analyzed and was found to consist of about 21% soap (of the potash type); 2% trisodium phosphate; 1% fusel oil (a solvent for oils, waxes, resins); 75% water. The best method for paint brush cleaning as discussed in CR's Annual Cumulative Bulletin is to let the paint brush stand in paint-and-varnish remover of the organic-liquid type (volatile liquid having strong aromatic odor) long enough for it to become thoroughly softened. Soaking for several days in undiluted liquid soap solution will sometimes soften paint-filled brushes; thus Prestorer, which is chiefly liquid soap, would have much the same value for the purpose as a strong solution of potash (soft) soap.

## Consumers' Research, Inc. Washington, N. J.

Please enter my order as checked. It is understood that my handling of any CR material which is marked "The analyses of commodities; products, or merchandise appearing in this issue of the Consumer's Research Bulletin are for the sole information of Consumers' Research subscribers" will be in accordance with that direction.

NAME \_\_\_\_\_  
(PLEASE SIGN IN LONGHAND)

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CITY & ZONE \_\_\_\_\_ STATE \_\_\_\_\_

BUSINESS OR PROFESSION \_\_\_\_\_

CR-2-47

Please check your preference:

☐ I enclose \$3 (Canada & foreign, \$3.50) for one year's subscription to Consumers' Research Bulletin monthly (12 issues).

☐ New

☐ Renewal

☐ I enclose \$1.50 for a copy of the CR edition of "Meat Three Times A Day." Since I am a subscriber to Consumers' Research Bulletin (12 issues), I am entitled to the special rate.

☐ I enclose \$4.50 (Canada & foreign, \$5.00) for one year's subscription to Consumers' Research Bulletin monthly (12 issues) AND a copy of the CR edition of "Meat Three Times A Day."

☐ New

☐ Renewal



# PHONOGRAPH RECORDS



By Walter F. Grueninger

Please Note: Prices quoted do not include taxes. In the ratings AA indicates highly recommended; A, recommended; B, intermediate; C, not recommended.

## ORCHESTRA

**Brahms: Symphony No. 3.** Philadelphia Orchestra under Ormandy. 8 sides, Columbia Set 642. \$4.85. A great symphony. Neither performance (dull) nor surfaces (crackling) nor recording (poor in bass, dynamics, detail) lead me to replace my pre-war Bruno Walter conducted Victor Set 341. Weingartner's Columbia Set 353 holds its own, too.

Interpretation B  
Fidelity of Recording B

**Glazounoff: The Seasons.** Dallas Symphony Orchestra under Dorati. 8 sides, Victor Set 1072. \$4.85. This ballet music bores me excepting for the first theme of "Autumn." Played well enough but recorded with little detail and limited frequency range.

Interpretation A  
Fidelity of Recording B

**Massenet: Le Cid—Ballet Suite.** Boston Pops Orchestra under Fiedler. 6 sides, Victor Set 1058. \$3. Rather obvious music that has its moments, played with zest. Recording fair excepting for excessive reverberation. Audible surfaces.

Interpretation AA  
Fidelity of Recording B

**Milhaud: Suite Francaise.** Philharmonic-Symphony Orchestra of New York under the composer. 4 sides, Columbia Set X268. \$2.85. A diverting new work based on French folk music. Definitive reading but recording lacks sufficient depth and some surfaces are noisy.

Interpretation AA  
Fidelity of Recording A

**Moussorgsky-Ravel: Pictures at an Exhibition** (7 sides) & **Moussorgsky: The Fair at Sorotchinski-Gopak** only (1 side). Philharmonic-Symphony Orchestra of New York under Rodzinski. Columbia Set 641. \$4.85. The music, expertly transcribed by Ravel, describes pictures in an art gallery. Performance first rate. Recording, superior American. Overall, best set of this composition.

Interpretation AA  
Fidelity of Recording AA

**Stravinsky: Petrouchka.** London Philharmonic Orchestra under Ansermet. 10 sides, Decca Set EDA 2. \$11. Colorful ballet music worthy of repeated hearing. Ansermet, in 1915, introduced the ballet in this country. Excellent performance and recording, exceptional in range of frequencies and dynamics. Recorded in Kingsway Hall, London, and pressed in England. The chief competitor, Victor Set 574 (\$4.85) offers a faster, more excited, less desirable reading and sumptuous domestic recording, though a little inferior to this set.

Interpretation AA  
Fidelity of Recording AA

**Tiomkin: Duel in the Sun Music.** Boston Pops Orchestra under Fiedler. 8 sides, Victor Set 1083. \$3.75. "Complete themes from the motion picture" add up to little. Played with dash, recorded with limited bass and detail. Noisy surfaces.

Interpretation AA  
Fidelity of Recording B

**Frank Sinatra Conducts Music of Alec Wilder.** Columbia String Orchestra and Soloists. 6 sides, Columbia Set 637. \$3.85. Most of the music, of little permanent value, reminds me of French impressionism though there are measures which only a 20th century American could have composed. Four sides offer solos for various woodwind instruments, two are for string orchestra. Capable performance and satisfactory recording, which would have been better if some of the solo instruments were nearer the mike.

Interpretation AA  
Fidelity of Recording A

**Alfred Newman Conducts.** Hollywood Symphony under Alfred Newman. 6 sides, Majestic Set 201. \$3. A pop program

recorded "on the finest, most modern sound stage in Hollywood," according to the press release, combining "the latest in electronic science with an advanced technique of recording on film." Later dubbed on shellac. Strident on wide open, high fidelity machine, more realistically balanced when high frequencies are attenuated. More bass than heard on most American recordings. Some surface noise. "Jalousie," "Malaguena," "Midnight Bells," "Hora Staccato," etc.

Interpretation AA  
Fidelity of Recording AA

## CONCERTO

**Gruenberg: Concerto.** Jascha Heifetz (violin) and the San Francisco Symphony Orchestra under Monteux. 8 sides, Victor Set 1079. \$4.85. The concerto, completed in 1944 for Heifetz, combines blues, jazz, romance, early American, and Oriental business which demands of the soloist an extraordinary technique. Performed with éclat. The recording is wide range, kind to the violin, but very poorly balanced so far as the orchestra is concerned. Some surfaces are noisy.

Interpretation AA  
Fidelity of Recording B

**Mozart: Concerto in E Flat for Two Pianos & Orchestra.** Vronsky and Babin (duo-pianos) with the Robin Hood Dell Orchestra of Philadelphia under Mitropoulos. 6 sides, Columbia Set 628. \$3.85. A gay work, the most frequently played concerto for these instruments. Sound performance but the recorded tone lacks incisiveness and surfaces are noisy. Overall, does not displace the Schnabel's Victor Set 484.

Interpretation A  
Fidelity of Recording B

## CHAMBER AND INSTRUMENTAL

**Brahms: Sonata No. 2** (Op. 120 No. 2). Benny Goodman (clarinet) Nadia Reisenberg (piano). 6 sides, Columbia Set 629. \$3.85. Deeply introspective, unimpressive work. Excellent performance and recording with Miss Reisenberg revealing surprising vitality. But I prefer Victor Set 422 because of the uncommonly rich performance by Primrose and Moore (viola and piano) which is not the way Brahms wrote this sonata, to be sure, though the instrumentation possesses the same "color."

Interpretation AA  
Fidelity of Recording AA

**Oscar Levant Plays Chopin** (piano). 8 sides, Columbia Set 649. \$4.85. These Etudes, Nocturnes, Waltzes, plus a Berceuse and a Polonaise are among Chopin's most popular compositions. The performance—at best uneven, at worst reminiscent of a student's recital. Recording lacks "ping," surfaces are noisy.

Interpretation B  
Fidelity of Recording B

## VOCAL

**Bizet: Carmen Excerpts.** Swarthout, Vinay, Merrill, Albanese, etc. (singers) under Leinsdorf. 12 sides, Victor Set 1078. \$7. Vocal highspots of a great opera. The cast is uneven with Miss Swarthout easily best of all. Excellent recording excepting for the concluding measures of side 4 ("Chanson Boheme") in which over monitoring levels the climax. Side 6 swishes but the other surfaces are quiet.

Interpretation B  
Fidelity of Recording AA

**Puccini: Highlights from Madame Butterfly.** Albanese, Melton, Browning (singers) under Weissmann. 6 sides, Victor Set 1068. \$3.85. The music sounds less impressive to me today than it did a decade ago. One of Albanese's best roles which she sings in the grand manner. Overall, however, the performance lacks distinction. Recording of voices satisfactory but the orchestra should be more prominent.

Interpretation B  
Fidelity of Recording A

## If You Like Steak—

"Steaks Three Times a Day (in Oklahoma City)" read the headline of a story by a roving reporter, fugitive from the OPA meat famine last fall, who was sent out by a New York newspaper to check on how well the cattle country folk were eating. It appeared that meat supplies were fairly plentiful - even during the period of direst shortages—and, given their choice, the reporter and his party had steak for breakfast, lunch, and dinner.

As MEAT THREE TIMES A DAY points out in Chapter IX, beef has a certain something that makes it an especially desirable food. If you need any additional reasons for eating beef other than your liking for it, get a copy of the book and find out why you should eat plenty of American's favorite food:

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### What The Critics Said:

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—Stanley Walker  
N. Y. Herald Tribune

"A lot of thought, for example, went into the writing of Meat Three Times a Day, and a lot of additional controversy has come out of it. Vegetarians bristled at its title and criticized its claims, chief among which was that the United States wants and needs more chops and steaks, more liver and game and lean pork."

—The Philadelphia Inquirer

"The old menus they have resurrected are something to make a mouth water and to sigh for a return of the days when one might follow a venison steak with a dozen stewed oysters, in the best hotel in town, for a total cost of 75 cents."

—N. Y. Sun

Meat Three Times A Day	
by	
F. J. Schlink and M. C. Phillips	
Contents	
Our Meat-Eating Ancestors . . . . .	Chapter I
Abundance of Meat: The American Heritage . . . . .	6
Why We Eat Less Meat Than Our Ancestors . . . . .	16
The Healing and Health Value of Meat . . . . .	17
The Need for Protein . . . . .	9
Meat or Vegetables . . . . .	11
Less Sugar and Starch for Better Health . . . . .	19
Food and Forage for Animals — Meat for Consumers . . . . .	19
Where Meat is Best . . . . .	15
Meat on the Table: How to Buy and How to Cook It . . . . .	1
Better Eating for America . . . . .	10

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